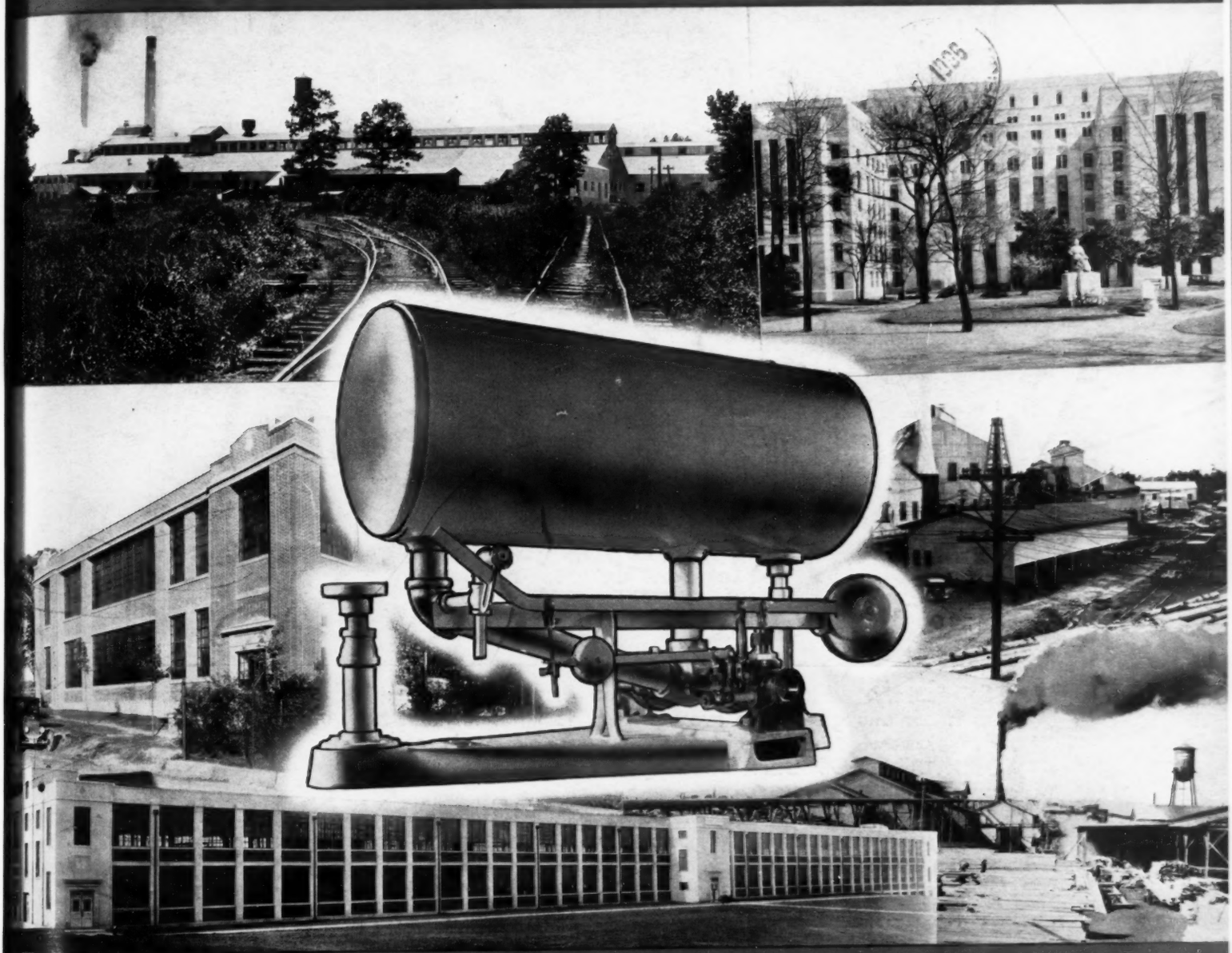
MARCH, 1936

COTTON

Serving the

TEXTILE INDUSTRIES



CONDENSATION A VALUABLE BY-PRODUCT!

Reclaim it with MOREHEAD BACK-TO-BOILER SYSTEM

Increases production from Driers, Dry Cans, Slashers, etc. Insures substantial savings of steam, water, labor and fuel

Write TODAY. Department C

MOREHEAD MANUFACTURING COMPANY

DETROIT, MICHIGAN

LOTS OF YARN

AND *Lots* OF EQUIPMENT TO CONVERT IT.

Satisfactory quality in colored cotton yarn is not enough for the average mill. Adequate service must also include CONSISTENTLY GOOD DELIVERIES by the supplier.

Franklin Process deliveries of colored cotton yarns are consistently good: first because we maintain at all times a large stock of natural cotton yarns in a variety of popular brands and counts; second because we have ample dyeing and winding facilities to meet both ordinary customer requirements and most emergency requirements.

PERFORMANCE *(not price)*
DETERMINES VALUE

May we quote on your yarn requirements, either colored or natural?

FRANKLIN PROCESS

ESTABLISHED 1910

Pioneers in Package Dyeing

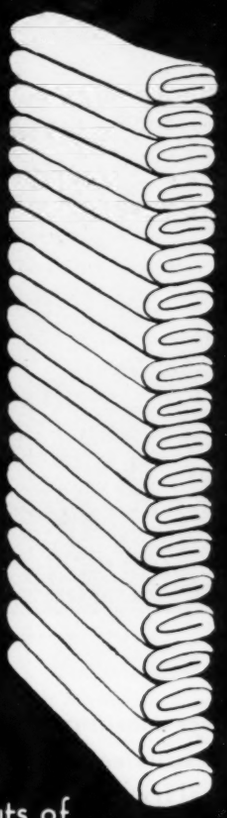
Natural Yarns **Colored Yarns** **Glazed Yarns** **Custom Yarn Dyeing** **Dyeing and Processing Machines**

PROVIDENCE • PHILADELPHIA • GREENVILLE • CHATTANOOGA • N. Y. REPRESENTATIVE, 40 WORTH ST.

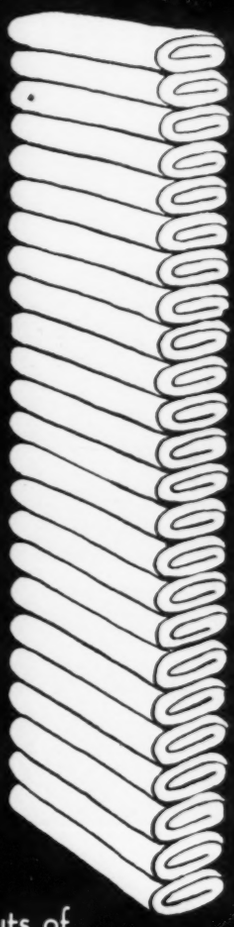
COTTON is published monthly by W. R. C. Smith Publishing Co., Dalton and Atlanta, Ga.
Subscription Rates, United States and Possessions, $1.00 for one year; $2.00 for three years; Canada, $1.50 per year; Foreign Countries, $2.00 per year.
Entered as second-class matter at the postoffice, Dalton, Ga., under the Act of March 3, 1879.

A Loom Becomes Obsolete When a Better Loom is Built

Looms of the X Family Are 20 Per Cent Better Than Looms of Like Models of the Slower E Family



20 Cuts of Cloth from E Model



24 Cuts of Cloth from X Model

In Same Number of Hours 20% More on X Model

Obsolete Looms Can't Compete

DRAPER CORPORATION

Atlanta Georgia Hopedale Massachusetts Spartanburg S C

Here's LONGER LIFE *to your spindles*

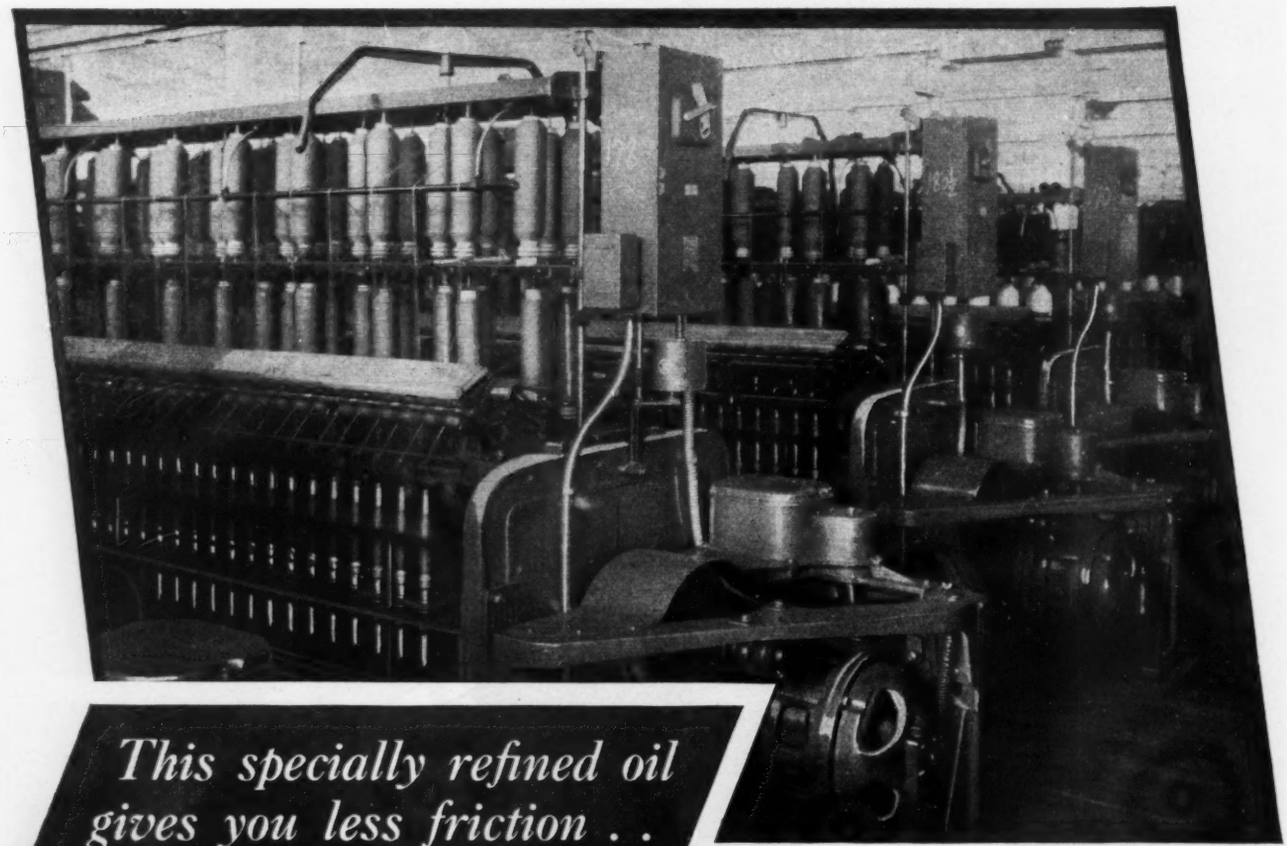


Photo courtesy of The Erwin Cotton Mills Company

This specially refined oil gives you less friction . . less wear . . less breakage

WHEN continuous operation means so much in your spinning department, you will be interested to know that Texaco Spindle Oils were especially built to reduce wobble and breakage.

These lubricants were developed after extensive spindle tests to determine the exact viscosity required to give adequate lubrication with a reduction in power consumption.

Results over a period of years show that where Texaco Spindle Oils have been introduced, power consumption was reduced 5 to 15%.

Less carefully refined oils, by causing wobble, high internal friction, ends down, and unnecessary power expenditure, *contribute to idle time, high power costs, and excessive maintenance expense.*

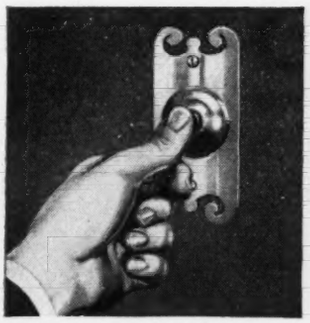
Let the Texaco representative install the proper grade of Texaco Spindle Oil in one of your spinning frames and show you what excellent economies you can get from this product.

THE TEXAS COMPANY
135 East 42nd St. · New York City
Nation-wide distribution facilities assure prompt delivery

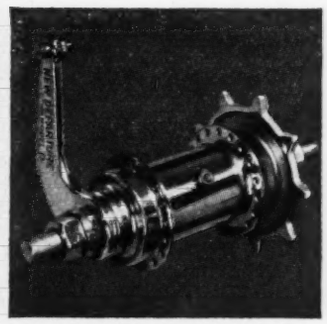
TEXACO *Industrial Lubricants*

A "new departure" in doorbells rang up the curtain

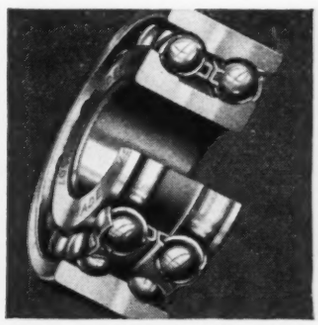
for the world's greatest ball bearing business



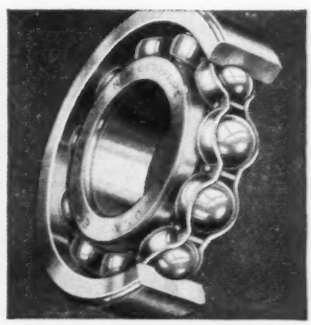
This doorbell was a *new departure*. It provided the "electric" ring householders wanted, but it did not require the "wet" batteries then in use.



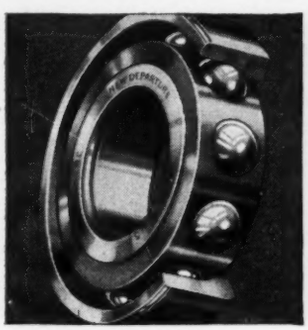
The New Departure coaster brake brought new enjoyment and safety to bicycling. Standard equipment on nearly every bicycle. Used for years by millions of riders.



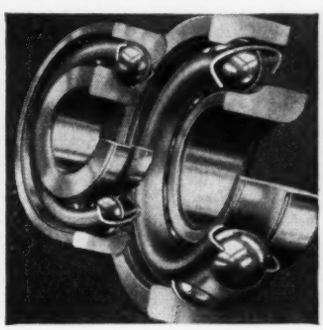
New Departure's double row, multi-purpose ball bearing which resists loads from any direction. Original with New Departure, now used in industry everywhere.



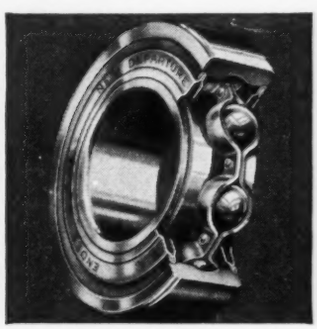
In America New Departure first made ball bearings in quantity and of uniform quality—developed precise dimension control for large-scale production of metal products.



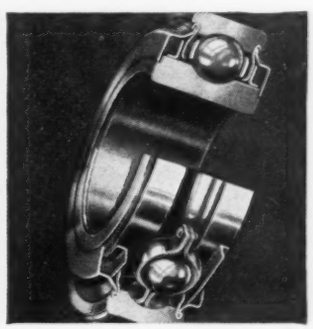
Radax, single row ball bearing which resists combined radial and thrust loads from one direction. Two Radax bearings opposed sustain loads from either direction.



New Departure front wheel bearing used in over 15 million cars and trucks. More than 64 millions used throughout the world, in many makes of cars and trucks.



N-D-Seal. Bearing and seal a self-contained unit. Also furnished doubled-sealed and lubricated-for-life. Keeps dirt out, lubricant in.



Automobile rear wheel bearing. Completely sealed and lubricated for life. Eliminates many operations and extra parts. Standard equipment on 9 makes of 1936 cars.

NEW DEPARTURE'S start centered around a better doorbell. From this "new departure" grew a great industry...the greatest ball bearing business in the world.

The rise of this business has been built on a series of "new departures". One after another, for more than a quarter of a century, they have appeared. Industry has welcomed these inventions ...has come to look upon New Departure as the first authority on ball bearing practice—as the master of the art.

On this page are shown a few outstanding "new departures" chosen from scores.

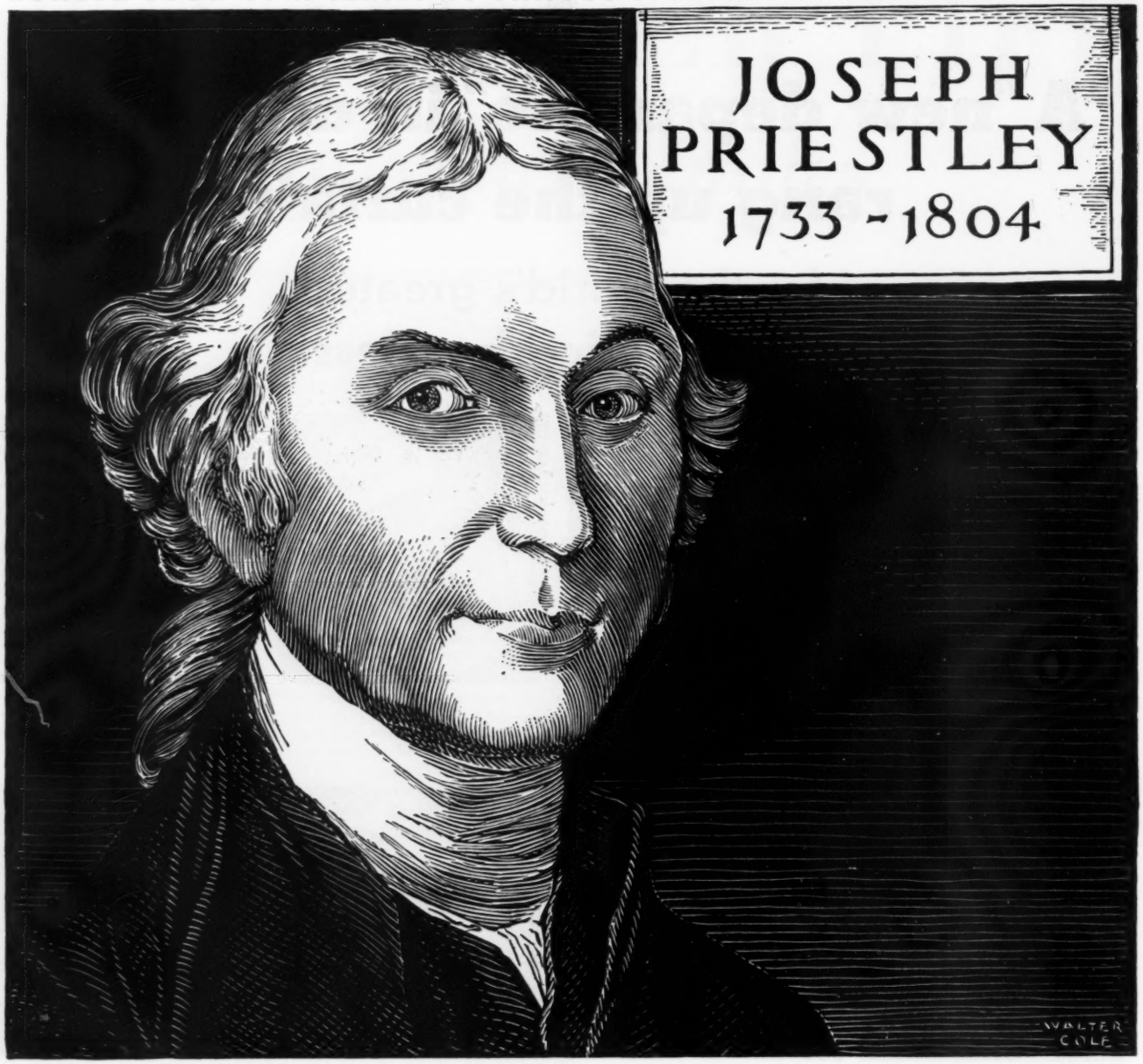
The New Departure Manufacturing Company, Bristol, Connecticut. Engineering staffs also at Chicago, Detroit, San Francisco and London.

Nothing Rolls like a Ball *No Other Form so Strong*

NEW DEPARTURE BALL BEARINGS

PEDIGREED MATERIALS • CREATIVE ENGINEERING • PRECISION MANUFACTURING

NUMBER FOUR OF A SERIES OF FAMOUS PIONEERS IN CHEMICAL HISTORY



TO JOSEPH PRIESTLEY, chemist-minister, belongs the distinction of discovering nine important gases, among which was ammonia. In the course of his experiments, Priestley established the fact that ammonia is composed of nitrogen and hydrogen gases. One hundred and fifty years later another pioneering venture in ammonia was launched at Niagara Falls when Mathieson started the operation of a synthetic ammonia plant which took nitrogen from the air and combined it with by-product hydrogen gas from the electrolytic alkali process. Produced by an organization already well-versed in the manufacture and handling of compressed gases, Mathieson Anhydrous Ammonia has from the beginning been noted for its purity and for the trouble-free container equipment in which it reaches the consumer.

During an early experiment at his cottage near Leeds, England, Priestley is said to have driven his protesting family from the house with the pungent ammonia fumes he generated. Years later, political enemies incited a mob to burn down his house and laboratory near Birmingham. Priestley was barely able to save himself and his family. Soon after, he emigrated to America, where he died nine years later at the age of 71.

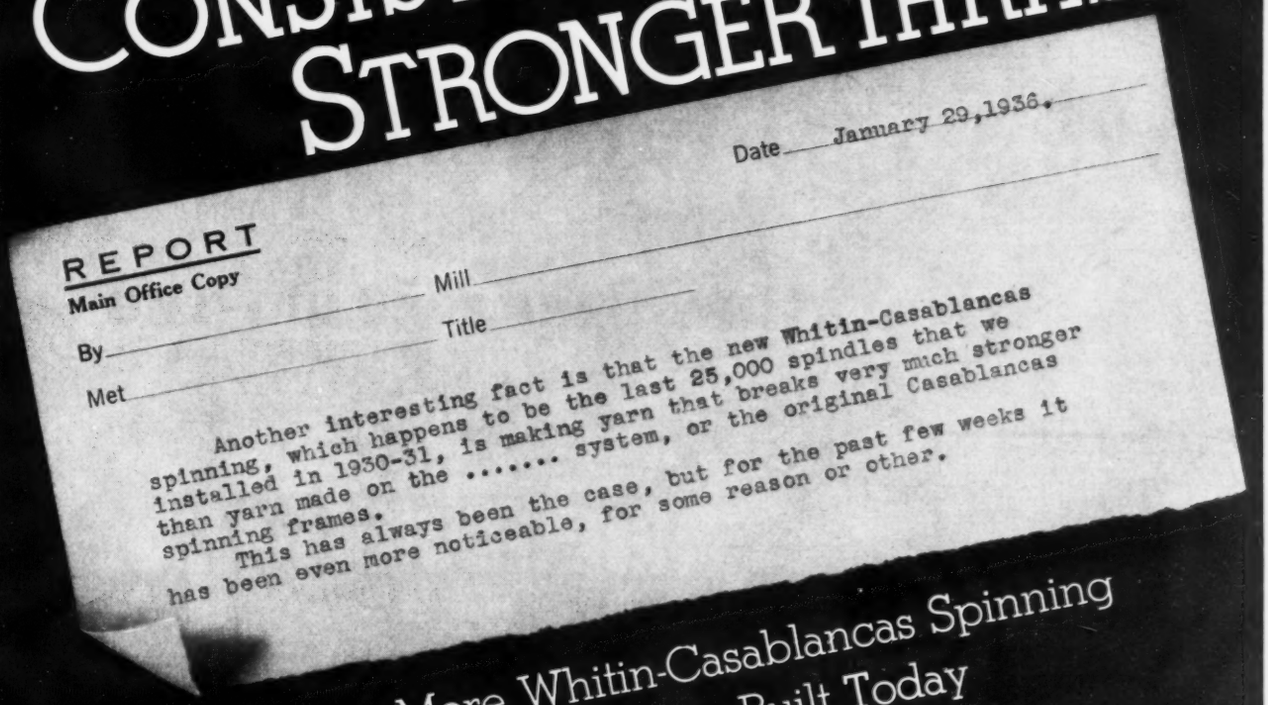
The MATHIESON ALKALI WORKS (*Inc.*), 60 East 42nd St., New York, N.Y.

SODA ASH . . . CAUSTIC SODA . . . BICARBONATE OF SODA . . . LIQUID CHLORINE . . . BLEACHING POWDER . . . HTH AND HTH-15 . . .

Mathieson Chemicals

AMMONIA, ANHYDROUS AND AQUA . . . PH-PLUS (FUSED ALKALI) . . . SOLID CARBON DIOXIDE . . . CCH (INDUSTRIAL HYPOCHLORITE)

CONSISTENTLY STRONGER YARNS!


REPORT
Main Office Copy

Date January 29,1936.

By _____ Mill _____

Met _____ Title _____

Another interesting fact is that the new Whitin-Casablancas spinning, which happens to be the last 25,000 spindles that we installed in 1930-31, is making yarn that breaks very much stronger than yarn made on the ..... system, or the original Casablancas spinning frames.

This has always been the case, but for the past few weeks it has been even more noticeable, for some reason or other.

More Whitin-Casablancas Spinning Is Being Built Today

An authentic report from the above mill for the last five weeks' period:

	No. of Yarn:	Break:	Factor:
The.....,System	20.64	99	2045
Original Casablancas Frames	20.38	100	2038
The new Whitin-Casablancas	20.20	101.4	2148

(A break factor better than 5% in favor of Whitin-Casablancas)

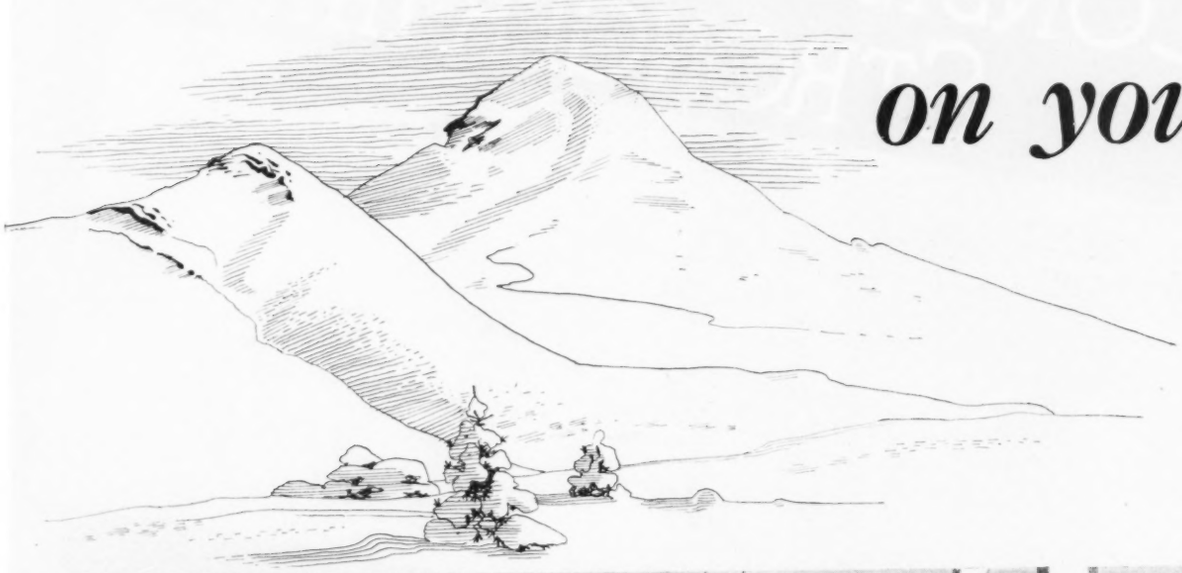
For fifty-two weeks in 1935, yarn spun on the Whitin-Casablancas System was consistently stronger than yarn made on a competitive long draft system running in the same spinning room.

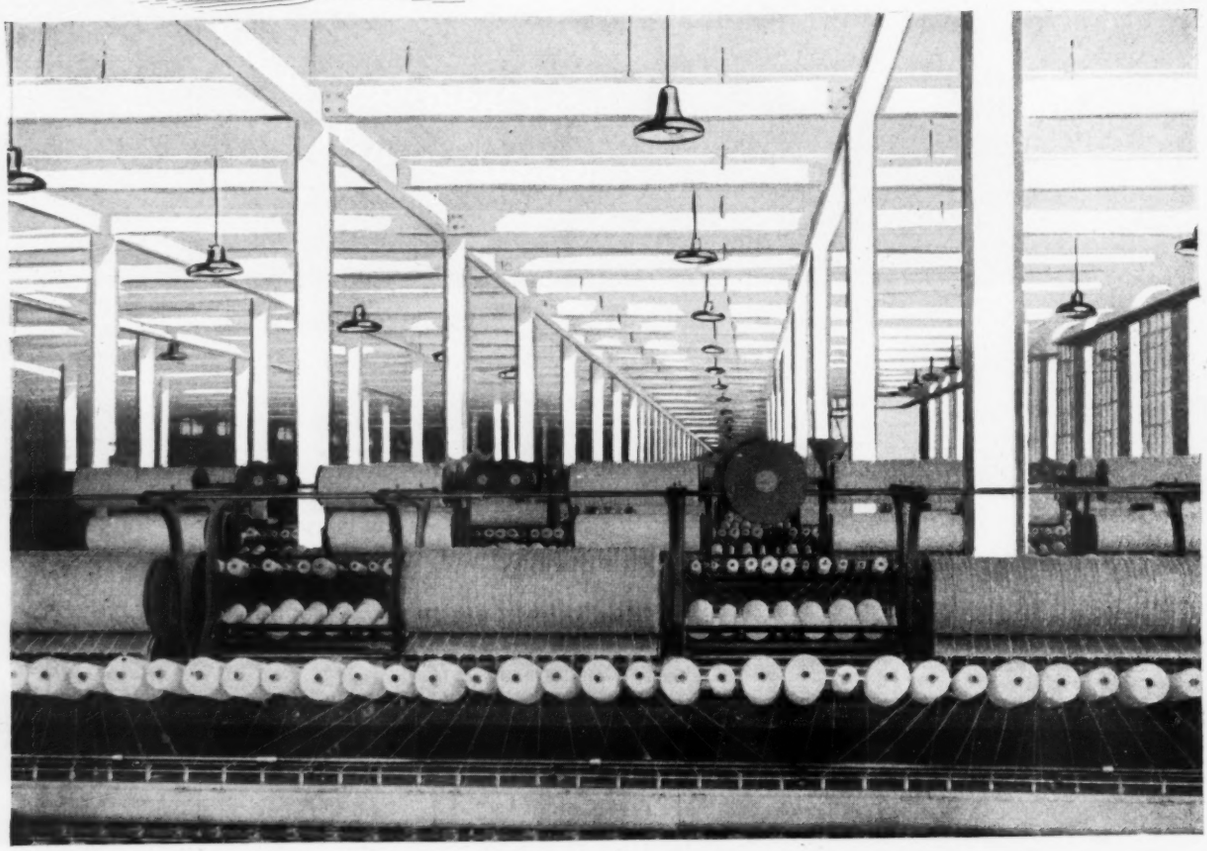
THREE HUNDRED AND FIFTY THOUSAND SPINDLES sold since November 1st is definite proof that mills have adopted the **WHITIN-CASABLANCAS** as the best long draft system for spinning and roving frames.

WHITIN

Charlotte, N. C. Whitinsville, Mass., U. S. A. Atlanta, Ga.

Pure snowy whiteness on your





New DU PONT REG. U. S. PAT. OFF. **DULUX** REG. U. S. PAT. OFF.

that stays white mill walls and ceilings...

DU PONT DULUX SUPER-WHITE

REG. U. S. PAT. OFF.

is the

WHITER

finish for textile mills

It starts whiter and it stays whiter.

There you have a quality of Du Pont DULUX Super-White that is hard to describe further. It would have been easier to leave a blank space for the whiteness of this page. Instead we compare it to Nature's whiteness into a mill as a symbol of the whiteness of DULUX when applied on mill walls and ceilings.

Mill executives know from experience that DULUX Super-White is "the whitest white they have ever used." And they have discovered that it *stays* white. Which means fewer repaintings . . . better lighting for employees, and more efficient production.

Du Pont chemists assured this whiteness at the start by means of a white pigment and the new DULUX Oil Vehicle, which does not yellow. They gave to DULUX its dirt-resistance, which enables it to stay cleaner. And they also gave DULUX a durability that resists washing when any is needed.

Here is a WHITER Finish for textile mills that answers every other requirement. It is a 10-Point Finish that has won its place as the outstanding mill white available today. Let a du Pont representative test it on your walls. Let him show you how to reduce repainting costs right away.

Write for the complete data on this 10-Point Finish in a new and interesting brochure "When Speeding Light Turns Laggard." Then ask for a demonstration in your mill. Send your request to E. I. du Pont de Nemours & Co., Inc., Finishes Division, Wilmington, Delaware.

DU PONT

DULUX

REG. U. S. PAT. OFF.

1 Is Whiter at the Start

2 Stays Whiter

3 Collects Less Dust

4 Stands Repeated Washings

5 Easy to Apply

6 Has Exceptional Hiding and Covers Solidly

7 Quicker-Drying

8 More Durable

9 Has Higher Original Gloss and Keeps Higher Gloss

10 Pre-Tested in "Lab" and Proved in Actual Service

Super-White ...STARTS WHITER ...STAYS WHITER

AMCO
IDEAL HUMIDIFIER

High capacity. Meets special requirements where high temperature and dry air combine to create a high humidity demand.

AMCO **No. 4 ATOMIZER**

Automatically self-cleaning whenever air is shut off. Exceptionally fine spray. Working parts of corrosion-resisting metals, machined to accurate joints so that gaskets are not required.

AMCO
LAP WEIGHT INDICATOR

Eliminates guesswork in determining proper lap weight under varying humidity conditions.

OUTSTANDING WEAPONS
in the battle against DRY AIR

Each of the products shown on this page is the result of years of research and practical experience of the American Moistening Co. Each has its place in eliminating static electricity, dust and fly, low regain and other damaging effects of Dry Air.

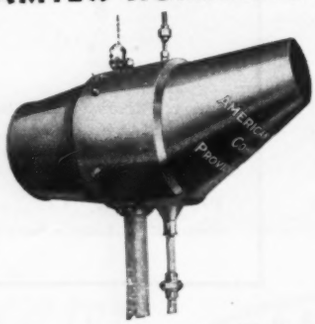
These products, and 48 years of invaluable experience in solving humidification problems, are back of every Amco Engineer. That is why Amco service is outstanding, and Amco installations are known throughout the textile industry as correct, reliable, and trouble-free.

AMCO
HUMIDITY CONTROL

Automatically controls humidity within very close limits. Extremely sensitive and active element.

For further information on Amco equipment, write for the catalog.

AMCO
AMTEX HUMIDIFIER



Designed primarily for laboratory use. All free water is arrested in the humidifier assuring an orifice delivery of full smoke-like spray at all times. Sensitive Amco Humidity Control (Electric Type).

IF IT'S A PROBLEM OF *Humidification* CALL IN THE AMCO ENGINEER

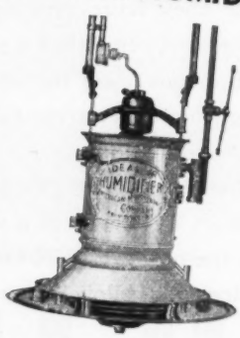
AMERICAN MOISTENING COMPANY

Established 1888

Providence, R. I.

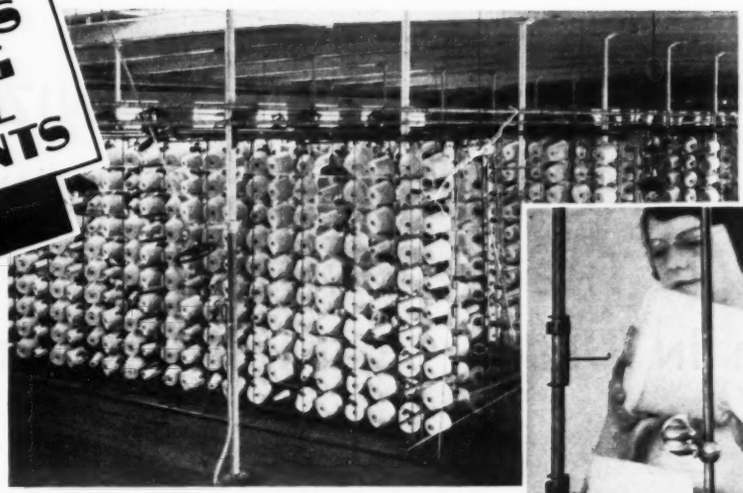
Boston, Mass. Charlotte, N. C.
Atlanta, Ga. Greenville, S. C.

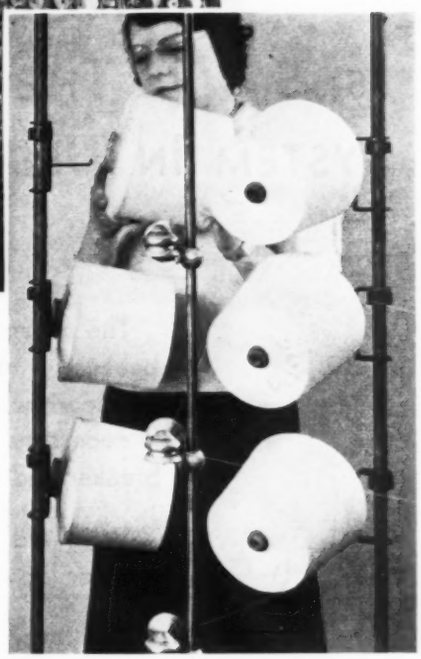
AMCO
IDEAL JR. HUMIDIFIER



Efficient and practical for medium high capacities. Motor driven fan gives maximum distribution of atomizer spray. Well constructed for long service.

FOR MILLS WARPING SEVERAL YARN COUNTS





While One Yarn Count is Running, Another is Loaded on Extra Cone Holders . . .

One set of 4-lb. cones in the Universal Magazine Creel holds enough yarn for three or more full beams without using the alternate cone holders and without stopping the warper for creeling.

While the warper is running, the extra cone holder for each warping end can be loaded with a full cone of the next yarn count but the cone is not swung into place until the warping order is completed.

Twist-Over---No Knots to Tie

The warper tender helps the creeler to change over. The old cone is swung out and the yarn broken. Then, instead of tying a knot to the end of the waiting cone, the ends are twisted over and the new cone swung into place.

Since the tension on the yarn is light, the splice is strong enough to hold until the ends have been pulled through to the front of the warper, where they are cut off to avoid mixing yarn counts on the beam. This is done in one operation; it is not necessary, when changing yarn counts, to rethread the combs and drop wires.

One Beam of 20/1 Every Hour

67,200 yards per cone
21,000 yards per beam
450 ends --- 563 lbs. per beam

Continuous Run on Large Orders

After the warper is started again, the creeler unloads the old cones and is ready for a new set. If the new order calls for more than three full beams, the alternate cone holders are loaded with another set of cones of the same yarn count, and the magazine ends are tied over. This is done while the warper is running, and until the yarn count is changed again, there is no need to stop the warper for creeling.

IN 3 OUT OF 4 MILLS MORE NET RETURN
Universal System of High Speed Coning and Warping
UNIVERSAL WINDING COMPANY
BOSTON
NEW YORK · PHILADELPHIA · PROVIDENCE · SPRINGFIELD · UTICA · CHARLOTTE · ATLANTA
2523

ALDRICH SYNCHRONIZED SINGLE PROCESS PICKING

IS STILL THE LEADING SINGLE PROCESS SYSTEM IN USE IN AMERICAN COTTON MILLS.

The patented Aldrich Synchronizer turns out better laps because it controls the flow of cotton through the whole picker without overloading the evener, and without making it necessary to use a hopper or gauge box between the breaker and finisher sections.

With old style two and three process picking, good breaker laps made better finished work than poor breaker laps.

With new style single process picking the same thing is true.

The Aldrich System is a continuous process in which the lap is made evener and smoother by each successive beater and screen section in the picker.

The Aldrich System does not tear up the breaker lap and then make another breaker lap for the cards.

The Aldrich System makes the best possible finished lap out of the best possible breaker lap.

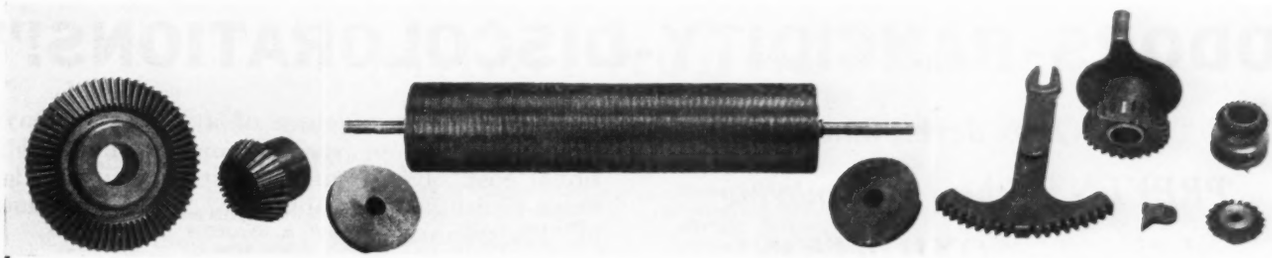
It can not only be applied to two and three process pickers, but to other types of less efficient single process machines.

AldricH MachinE

Greenwood, WorkS South Carolina

NOTHING
Too Large
or
Perplexing

NOTHING
Too Small
or
Intricate!



WEST POINT SPECIALLY MADE **TEXTILE** EQUIPMENT AND PARTS

You need have no hesitancy in calling on us for any special machinery or parts. If we cannot serve you adequately we will tell you promptly.

If a part or a gear of a textile machine breaks, we may have it in stock, but if not, we can make a new one in a short time.

Loom parts, spinning frame parts, pump parts, card parts and various other miscellaneous parts for textile machinery are manufactured by us from iron, steel, brass, bronze and other metals and alloys.

Our foundry and machine shop is well equipped and we maintain a force of capable mechanics as well as our own Engineering Department to furnish designs of our own or to work out yours.

If you have need for special machinery or special parts, we can help you perfect and produce them for your exclusive use, as we have for a number of other mills.

So remember, ***"Nothing too large or perplexing, nothing too small or intricate."***

WEST POINT FOUNDRY & MACHINE CO.
(Batson-Cook Company, Owners)
WEST POINT, GEORGIA

"What a relief!

. . . no more complaints about

ODORS-RANCIDITY-DISCOLORATIONS!"

New Onyx development
PREVENTS them by removing
the cause . . . OXIDATION!

Don't merely disguise rancidity and odors . . . ***actually prevent them!*** Use the new PHOSPHAMIZED Finishing Oils, which positively eliminate oxidation in finished goods.

You get two-fold advantages with PHOSPHAMIZED Finishing Oils. First, you produce the finest fabrics possible. Second, your fabrics *stay* that way on the shelf, in shipment or storage . . . indefinitely . . . despite the severest conditions of temperature, dampness or dryness.

"Phosphamizing" is an exclusive process applied in the manufacture of any present Onyx Finishing Oils—***on specification***—at slight additional cost. Every mill benefit of your regular Onyx Finishing Oil is obtained . . . plus the values of "Phosphamizing".

In addition to preventing oxidation, a considerably softer hand is given all fabrics; constant lubricity is maintained; there is no change in film form on exposure; penetration is increased.

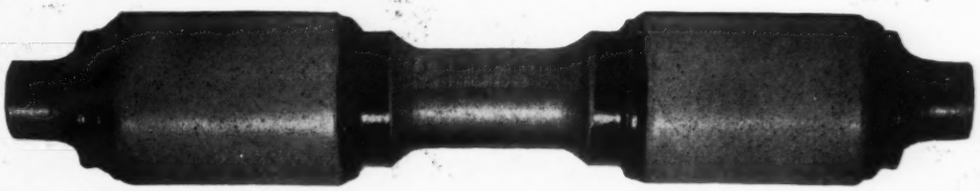
In no other product can you get "Phosphamizing" and its unique benefits. To make tests in your mill, write in detail for sample and further information.

ONYX OIL & CHEMICAL CO.
Jersey City, N. J.
Specialists on Finishing Materials.
Southern Repr. E. W. Klumph, Charlotte, N. C.
Midw. Repr. Maher Color & Chemical Co., Inc., Chicago.
In Canada: Onyx Oil & Chemical Co., Ltd., Montreal.

Phosphamized FINISHING OILS

Everlastic

TEXTILE ROLL COVERS



QUALITY :: EXTREME DURABILITY :: RESILIENCY

ANNOUNCEMENT

The following concerns have been selected by Roger W. Cutler to act as his agents in the sale of Everlastic:

William R. West ---------- New Bedford, Mass.	East Point Roller Covering Co. ---East Point, Ga.
Howland-Bridge Co., Inc. ---------- Chester, Pa.	Dixie Roll & Cot Co. ---------- Macon, Ga.
C. B. Wetherell & Son Co. ------ Fall River, Mass.	Morrow Roller Shop ---------- Albemarle, N. C.
B. L. Stewart Roller Shop ------- Laurinburg, N. C.	Peerless Roll Covering Co. ----- Chattanooga, Tenn.
Dixie Roller Shop ---------- Rockingham, N. C.	Textile Roll & Cot Co. ---------- Dallas, Texas
A. J. Whittemore & Sons -------- Burlington, N. C.	Greenville Textile Supply Co.------ Greenville, S. C.
Textile Roll Covering Works ------ LaGrange, Ga.	Anniston Roll Covering Co. -------- Anniston, Ala.

The above named companies are fully equipped to mount Everlastic for all textile mills that have not the necessary mounting and grinding equipment. All mills that have grinding equipment may order their Everlastic covers direct from our Boston office and be assured of prompt and efficient service.

Information concerning Everlastic may be obtained by writing to our Boston office or by contacting any of the above-named concerns.

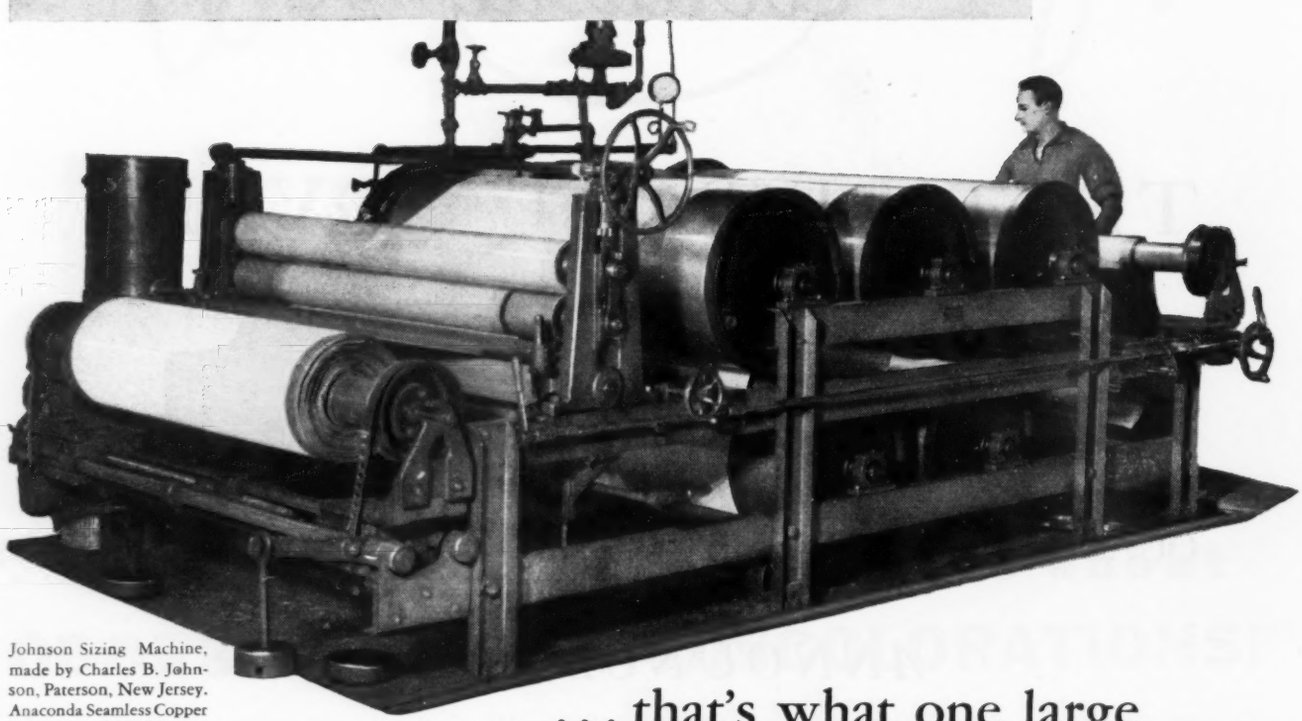
The textile salesmen of the Manhattan-Raybestos Company, and of the United States Rubber Products, Inc., are also co-operatively prepared to furnish information concerning Everlastic.

All orders should be submitted to our Boston office or to any of the above-named roller covering companies.

ROGER W. CUTLER

141 Milk Street, Boston, Mass. Telephone, Lib. 6700

"Superior to brazed cylinders... smoother, stronger, more symmetric"



Johnson Sizing Machine, made by Charles B. Johnson, Paterson, New Jersey. Anaconda Seamless Copper Tubes are used for dry cans.

... that's what one large user says about

Seamless DRY CANS

Charles B. Johnson, experienced manufacturer of textile machinery, is well qualified to make this significant statement about the superiority of dry cans made of Seamless Anaconda Copper Tubes:

"We have found that Seamless Copper Drying Cylinders are superior to the brazed cylinders and that they are smoother, stronger, more symmetric and concentric."

To which we add this one thought: That commercial production of large seamless tubes up to 26" in diameter, *by special mill equipment of The American Brass Company,* provides the textile industry with this superior material for the construction of better quality dry cans... at no increase in cost.

Textile companies and equipment manufacturers are invited to communicate with us for specific information on their requirements. In addition, our Technical Department is prepared to consult with engineers on all problems pertaining to the use of copper and its many serviceable alloys in the textile industry.

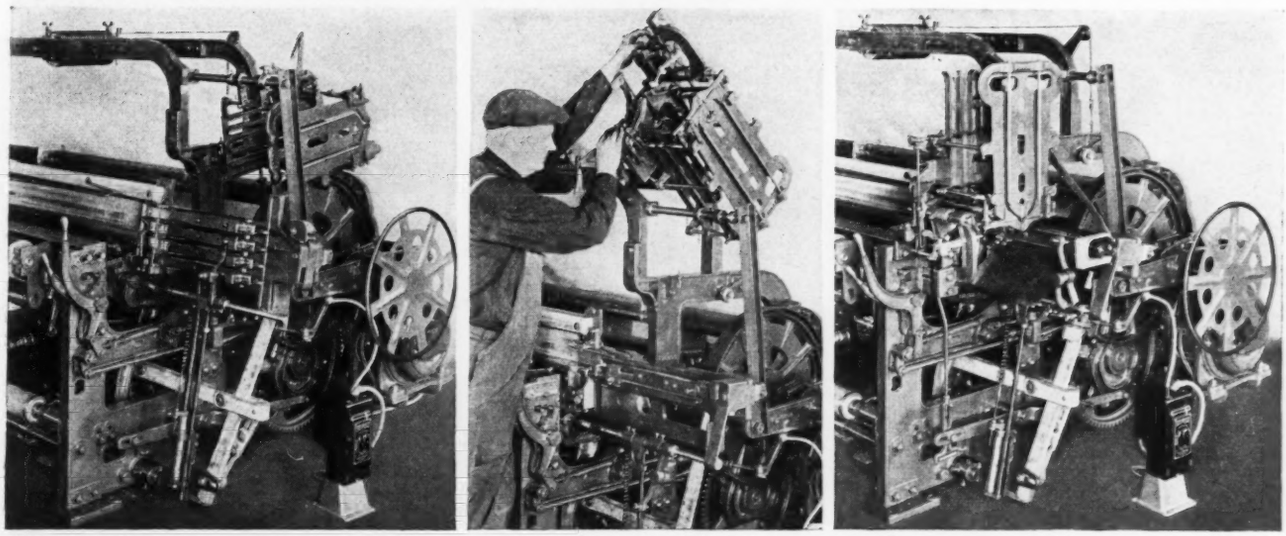
35197

THE AMERICAN BRASS COMPANY
General Offices: Waterbury, Connecticut
Offices and Agencies in Principal Cities
In Canada: ANACONDA AMERICAN BRASS LTD., New Toronto, Ontario

ANACONDA
From mine to consumer

ANACONDA COPPER & BRASS

new Flexibility —
FOR WEAVING WORSTEDS AND WOOLENS

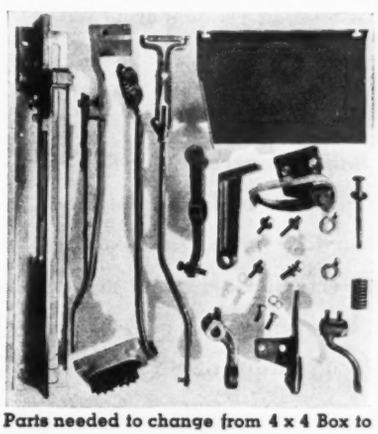


4x4 BOX PICK AND PICK—CHANGED IN 30 MINUTES TO 4x1 BOX AUTOMATIC

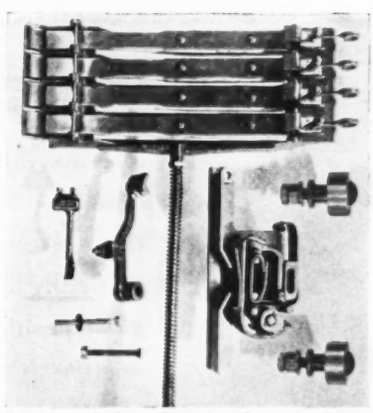
The new C & K W-2 and W-3 Convertible Looms make possible a quick change from 4 x 4 Box Pick and Pick non-automatic to 4 x 1 Box Automatic, and vice versa

With relatively little additional expense the new Convertible Loom can be changed in a few minutes from one type to the other.

The new Convertible Loom is thoroughly in keeping with our policy of constantly making our looms more flexible and a better investment.



Parts needed to change from 4 x 4 Box to 4 x 1 Box



Parts needed in changing from 4 x 1 Box to 4 x 4 Box

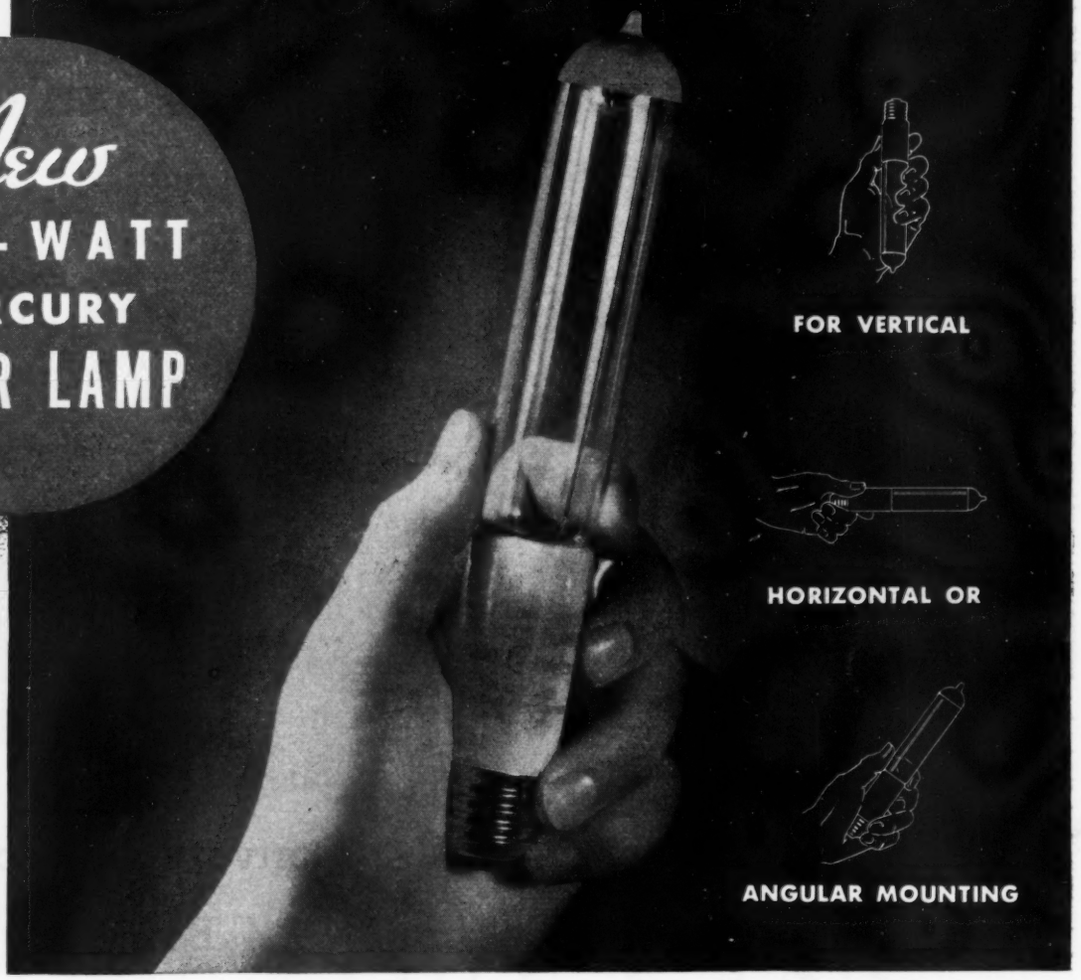
CROMPTON & KNOWLES LOOM WORKS

Allentown Philadelphia **WORCESTER, MASSACHUSETTS** Charlotte, North Carolina

CROMPTON & KNOWLES JACQUARD & SUPPLY CO., PAWTUCKET, R. I.

INTRODUCING

New
250-WATT
MERCURY
VAPOR LAMP



FOR VERTICAL

HORIZONTAL OR

ANGULAR MOUNTING

Order your auxiliary devices which were designed especially for this lamp from the General Electric Vapor Lamp Company.

30 LUMENS PER WATT

For applications which do not permit the use of the standard 400-watt high intensity mercury-vapor lamp, General Electric has developed this companion lamp. It is of the universal burning type, functioning efficiently in the vertical, horizontal or angular positions. It produces as much light as is developed by 425 watts of Mazda light and has an operating life rating of 2,000 hours.

Used alone, this new lamp provides efficient lighting in low bays. In combination with Mazda lamps the intermingling of colors produces approximately a cool white light, highly desirable for factory and office.

Write for complete information.

GENERAL ELECTRIC

694

GENERAL ELECTRIC VAPOR LAMP CO.
853 Adams Street, Hoboken, N. J.

INCANDESCENT LAMP DEPARTMENT
Nela Park, Cleveland, Ohio

Costly Fallacies in Plant Lubrication—

THERE'S A MAN IN YOUR PLANT TELLING YOU THIS RIGHT NOW:

"OIL IS OIL!"

SUCH AN IDEA is contrary to the scientific principles of correct lubrication. Oils must be just as different as machines and operating conditions. For 70 years the makers of Gargoyle Lubricants have sponsored "correct lubrication" by proving that "the *right* oil in the *right* place, in the *right* way" saves money. Thousands of plants—many in your own field—are using these principles successfully. The results they secure daily in reduced power consumption, more continuous production, decreased maintenance, lower lubrication costs are Socony-Vacuum's vital contributions to industrial progress.

ON THE NEXT PAGE
—A MESSAGE OF
TIMELY IMPORTANCE

IS YOUR OIL "ON THE SPOT"?

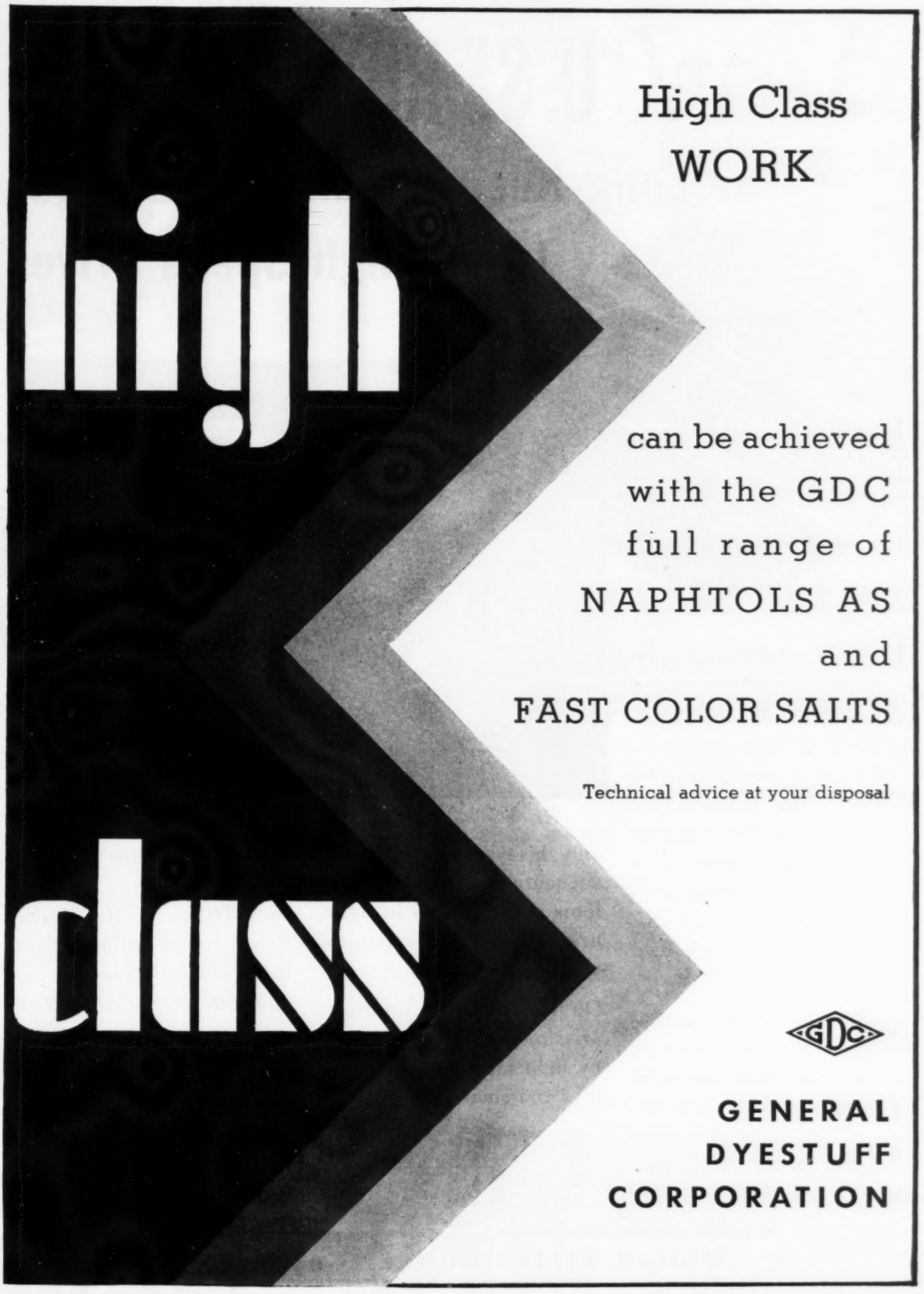
Spoilage from Staining Costs Money!
A Check-up on Your Lubrication by
Socony-Vacuum will reduce this expense

YOU NO LONGER must choose between the twin evils of spoilage from "oil throw" and high power costs from inadequate lubrication. Copy some of this country's largest mills by standardizing on Gargoyle Lubricants. Then it is Socony-Vacuum's job to help your staff find ways to reduce both spoilage and power costs.

GARGOYLE Lubricants

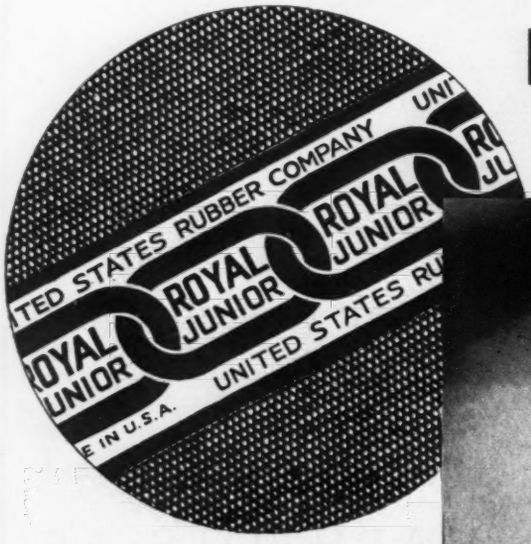
SOCONY-VACUUM OIL CO.
INCORPORATED

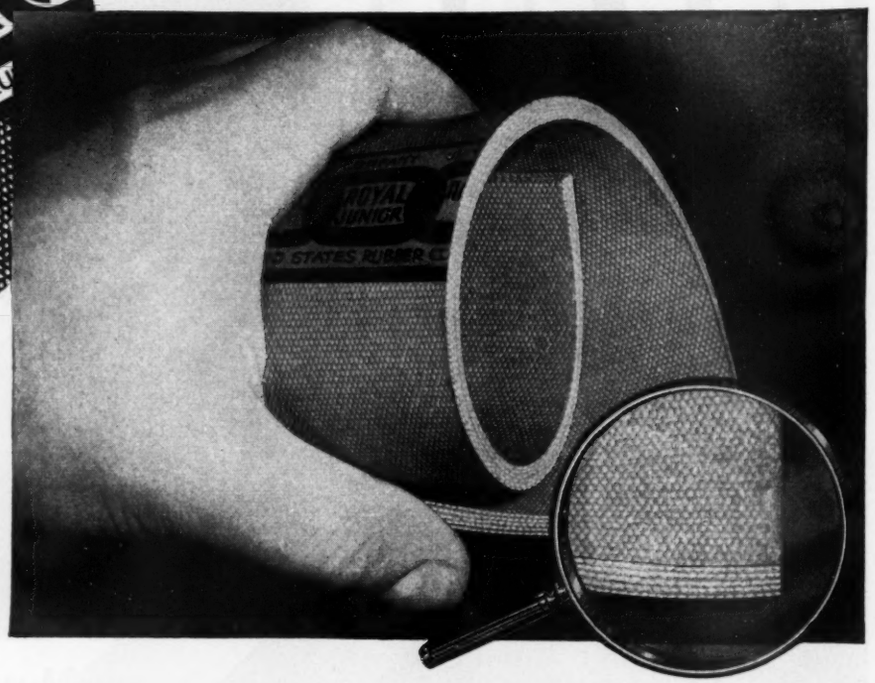
STANDARD OIL OF NEW YORK DIVISION · WHITE STAR DIVISION · LUBRITE DIVISION · WHITE EAGLE DIVISION
WADHAMS OIL COMPANY · MAGNOLIA PETROLEUM COMPANY · GENERAL PETROLEUM CORPORATION OF CALIFORNIA


high
class
High Class
WORK
can be achieved
with the GDC
full range of
NAPHTOLS AS
and
FAST COLOR SALTS
Technical advice at your disposal
GDC
GENERAL
DYESTUFF
CORPORATION

Now! "U.S." ROYAL JUNIOR

The Long-Needed PERFECT Belt for Light, High-Speed Drives





FOR light, fast drives the textile industry has long needed a belt sufficiently powerful to take high-speed punishment, yet *flexible* enough to give easily to light strains. This need is satisfied by the new "U.S." Royal Junior . . . a belt as perfectly adapted to its particular job as the "U.S." Royal to heavy shock load work.

"U.S." Royal Junior is constructed of closely-woven, strong cotton duck thoroughly impregnated with live rubber. "U.S." engineers have found, through arduous, painstaking research, that only this type of construction adequately solves the problems met by belts in light, high-speed transmission work.

On light drives . . . on transmission jobs characterized by light tensions, small pulleys and small bearings . . . on small machine and machine tool jobs . . . on auxiliary drives . . . the "U.S." Royal Junior will serve you more efficiently, longer . . . and with lower ultimate cost.

• • •

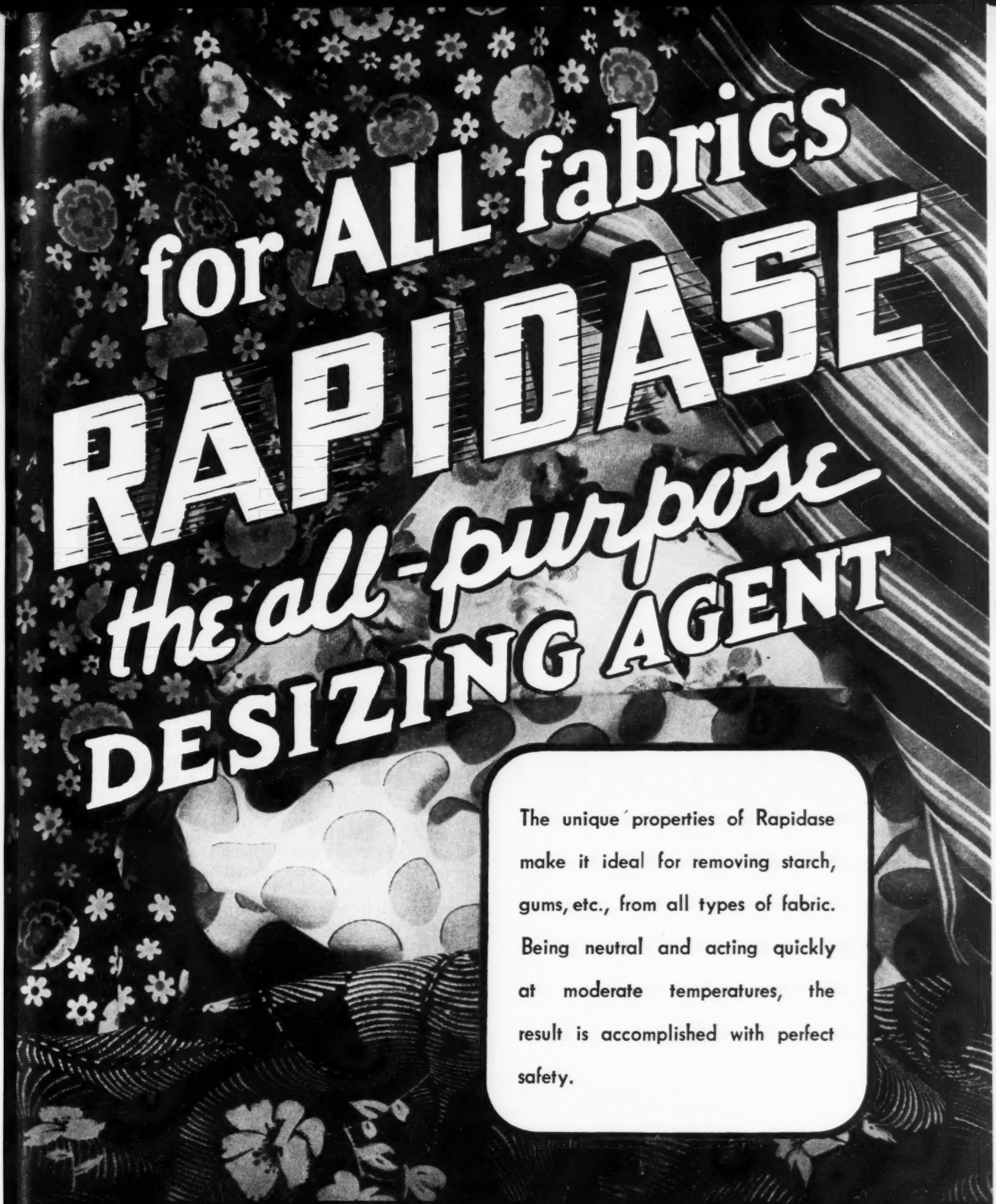
These "U.S." Rubber Products, Inc., Branches in the Great Textile Centers are at your service.

Atlanta Boston
Birmingham Philadelphia

UNITED STATES RUBBER COMPANY · US · TRADE MARK

United States Rubber Company

United States Rubber Products, Inc., 1790 Broadway, New York, N. Y.

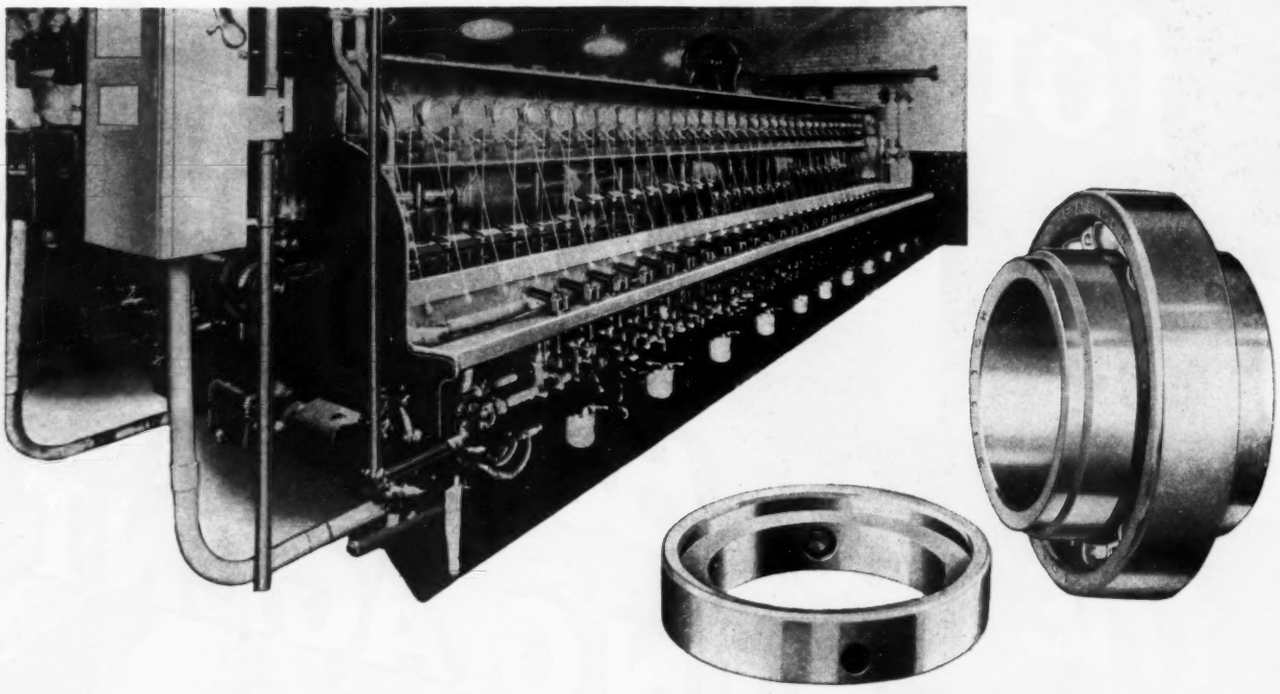

for ALL fabrics
RAPIDASE
the all-purpose
DESIZING AGENT
The unique properties of Rapidase make it ideal for removing starch, gums, etc., from all types of fabric. Being neutral and acting quickly at moderate temperatures, the result is accomplished with perfect safety.

WALLERSTEIN CO.

INCORPORATED

171 MADISON AVE. NEW YORK CITY

2 *years of* PERFECT SATISFACTION



A PRECISION-BUILT RAYON POT SPINNER

Friction-Free on FAFNIRS

FAFNIR BALL BEARINGS ARE NOW IN SERVICE IN SUCH TEXTILE MACHINERY AS THE FOLLOWING:

Bale Breakers	Dyeing Equipment
Feeders	Extractors
Openers	Dryers
Feed Tables	Printing Machinery
Distributors	Agers
Breaker Lappers	Soapers
Intermediate Lappers	Tenter Frames
Finisher Lappers	Calenders
Cards	Button Breakers
Roving Frames	Shoddy Pickers
Spinning Frames	Garnett Machines
Twisters	Burr Pickers
Winders	Mixing Pickers
Warpers	Scourers
Slashers	Fulling Mills
Looms	Shearing Machines
Bleaching Equipment	Rayon Pot Spinners

Among the textile machines that have won national reputations for unusual strength and inherent long life is the rayon pot spinning machine manufactured by H. W. Butterworth & Sons Company, of Philadelphia. These rugged, precision-built machines are equipped with many score Fafnir Ball Bearings, both *radial* and *wide-inner-ring* (with exclusive self locking collar) types.

At one well-known mill,* Fafnir-equipped Butterworth Ray-Speed Pot Spinning Machines "have operated under very trying conditions for over two years with perfect satisfaction." Fafnir's line of anti-friction ball bearings — the most complete in America — makes it possible for machinery builders to select exactly the right ball bearing for the purpose at hand.

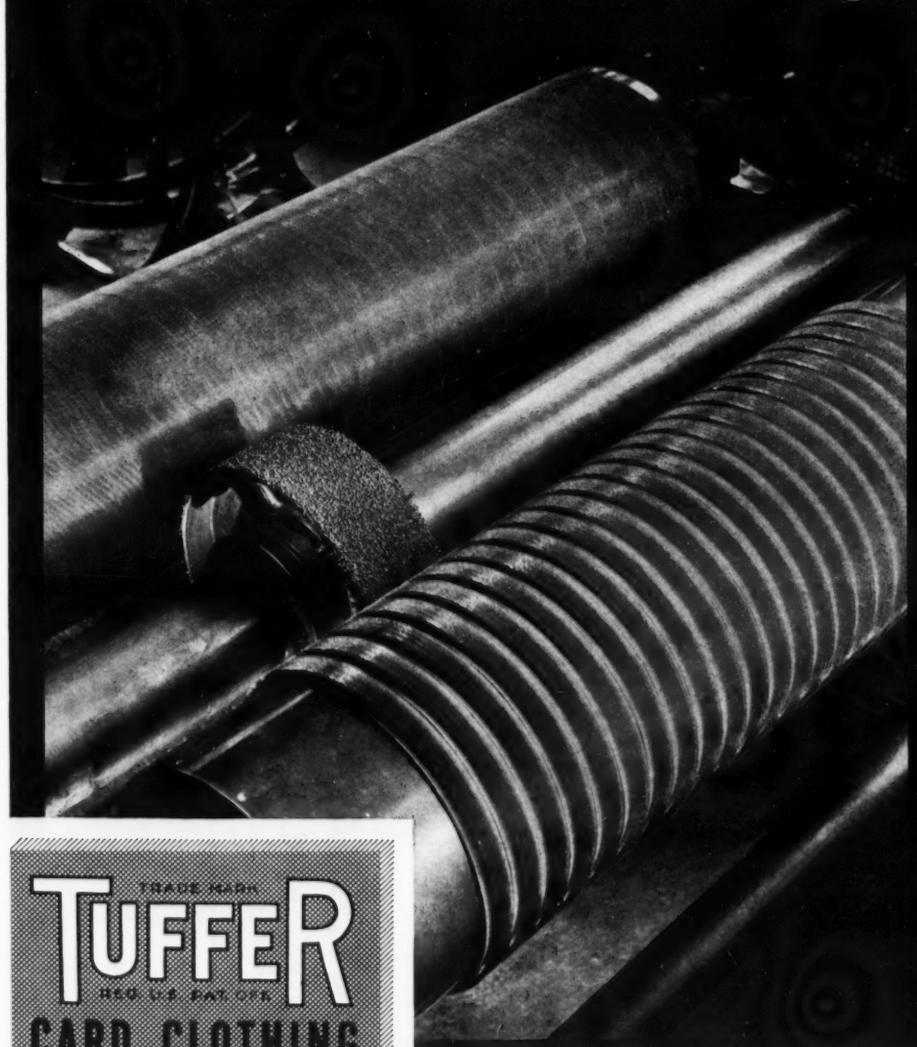
The extra large balls and deep raceways of Fafnir Bearings and the rigid inspection methods under which they are made assure the maximum in power savings, reduced maintenance, greater cleanliness and durability, more productive machine hours, and important economies in lubrication . . . THE FAFNIR BEARING COMPANY, *New Britain, Conn. Representatives also at:* Atlanta, Ga. . . . Birmingham, Alabama . . . Boston, Mass. . . . Charlotte, N. C. . . . Dallas, Texas . . . Houston, Texas . . . Kansas City, Missouri.

*Name upon request.

FAFNIR BALL BEARINGS

TUFFER Card Clothing comes

to you with Points Carefully Ground



Starting with the finest quality of card wire made from Swedish Steel rods, TUFFER Card Clothing is handled in the grinding room by long experienced craftsmen. Accurate adjustments are made to allow the correct amount of abrasion to hit all the points uniformly. Another set of grinder rolls set to precision standards removes any roughness or burrs that might be on the points. Each grinding machine is in the capable hands of expert grinders who constantly watch and check every detail. With height and pitch gauges, they keep every inch to required specifications. As an extra safeguard, the Grinding Room Foreman makes a final inspection and examination.

A Boss Carder recently wrote:

"I never grind any 'TUFFER' Card Clothing when I first put it on, it comes so uniform and even, with such an excellent point, that it is not necessary to grind it."

Be ready for the upturn in business with your machines equipped with TUFFER Card Clothing.

TRADE MARK
TUFFER
REG. U.S. PAT. OFF.
CARD CLOTHING

HOWARD BROS. MFG. CO.

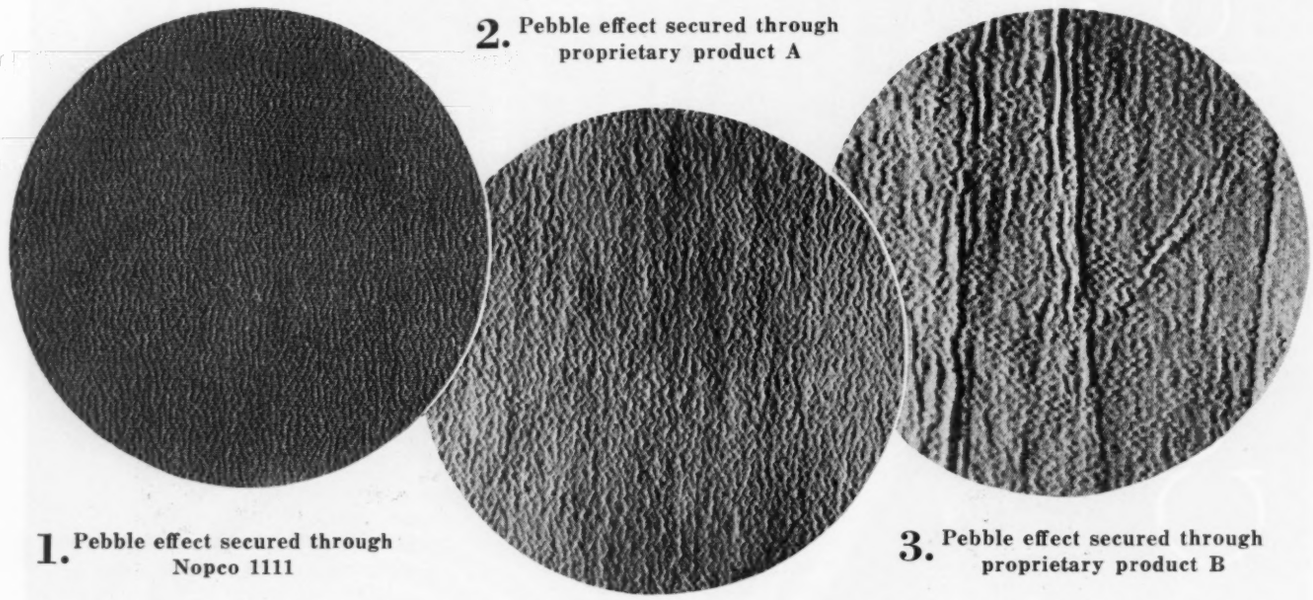
HOME OFFICE AND FACTORY: WORCESTER, MASS.

Southern Plant: 244 Forsythe St., Atlanta **Branch Offices:** Philadelphia, Dallas

Products: Fillets for Feed Rolls, Lickerins, Tumblers, Strippers, Workers, Doffers, Fancies, and Cylinders, Doffer Rings, Napper Clothing, Strickles, Emery Fillets, Burnisher Fillets, Top Flats Recovered and extra sets loaned, Lickerins and Garnett Cylinders from 4 to 30 inches and Metallic Card Breasts Rewired at Southern Plant. Midgley Patented Hand Stripping Cards, Howard's Special Hand Stripping Cards and Inserted Eye and Regular Wire Heddles

THROWSTERS CHOOSE NOPCO 1111

Microphotographs Show Reason



1. Pebble effect secured through Nopco 1111

2. Pebble effect secured through proprietary product A

3. Pebble effect secured through proprietary product B

STUDY the 3 un-retouched microphotographs above. They explain graphically why more throwsters use Nopco 1111 than any other throwing oil—why the number of throwsters using Nopco 1111 has steadily increased each year.

If you are not already using Nopco 1111, let us tell you more about this superior throwing oil—today. The results of actual mill tests and the counsel of the Nopco Research Laboratories are yours for the asking—without obligation.

NATIONAL OIL PRODUCTS COMPANY, Inc.

Harrison, N. J. . Chicago . Boston . San Francisco

Member of Throwsters Research Institute

Member of U. S. Institute of Textile Research, Inc.

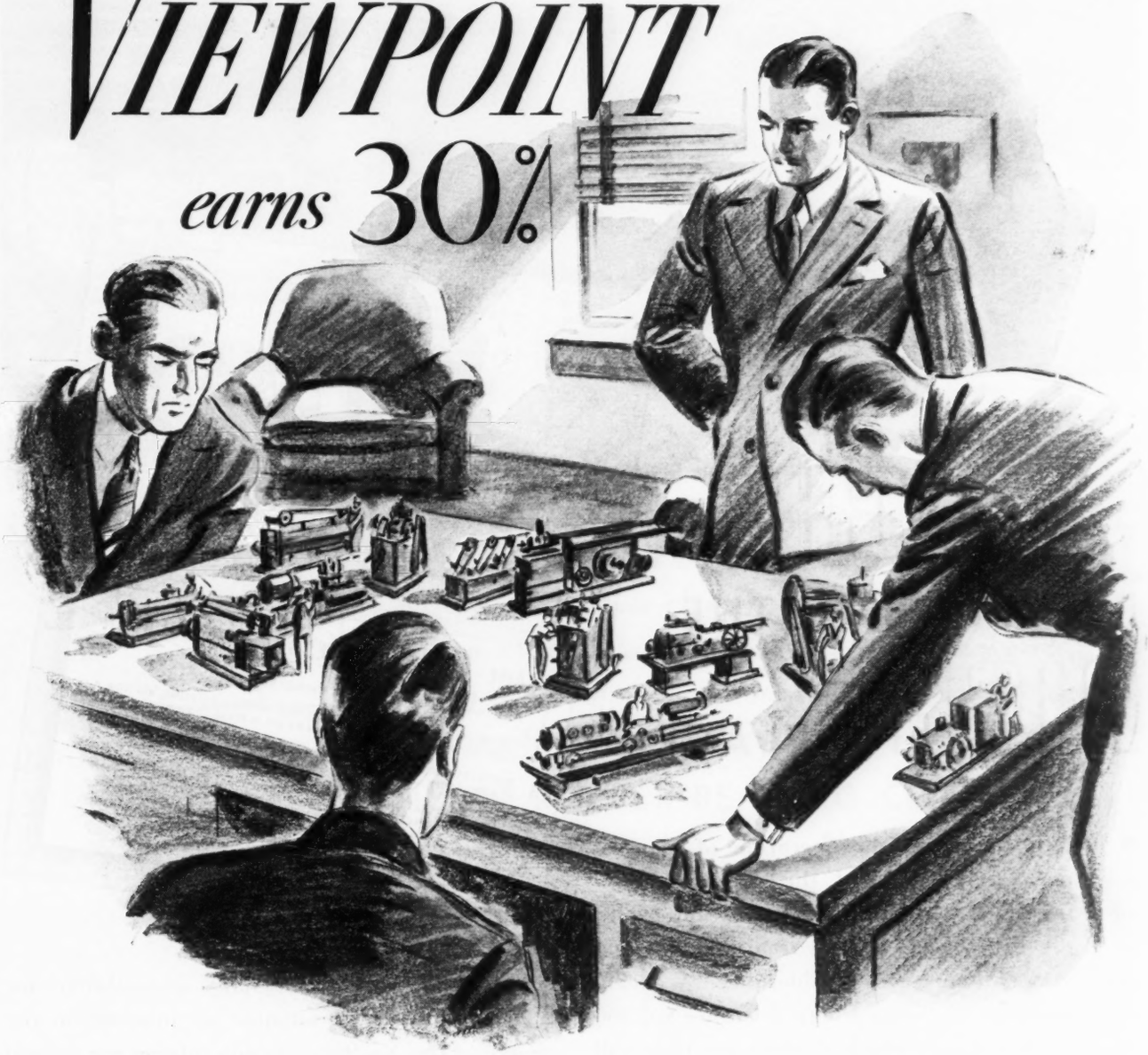
National Oil Products Company, Harrison, N. J.
Gentlemen:
Please send complete information regarding Nopco 1111 throwing oil.

NOPCO

Name ---------- Address ----------

Company ---------- ----------C3

VIEWPOINT earns 30%



CAREFUL consideration, from the combined points of view of various operating officials, resulted in a Modern Group Drive installation which

1. Saved over $3,000 of capital.
2. Economically invested $1,500.
3. Earned 30% annual return.

The facts? A machine parts manufacturer planned to build a small branch plant with 18 machines. Comparative studies of transmission costs were worked up with the assistance of the local Power Transmission Club. These studies resulted in two definite plans:

A. Each machine individually motor driven—transmission investment $4,550, annual fixed charges $682.50.

B. All machines Modern Group Driven—transmission investment $1,530, annual fixed charges $229.50.

Detailed comparisons of the plans showed that M. G. D. would save $3,020 initially, $453 annually in fixed charges, $60 per year in power bills, and insure maximum production with less maintenance charges. Every operating official voted for it, and Modern Group Drive was installed.

3,500 members of 60 Power Transmission Clubs, trained to analyze drive problems, are ready to help *you* save power dollars. May we send you a free copy of our Red Book, based on typical plant case studies, "A Practical Analysis of Some Fundamentals of Industrial Power Transmission"?

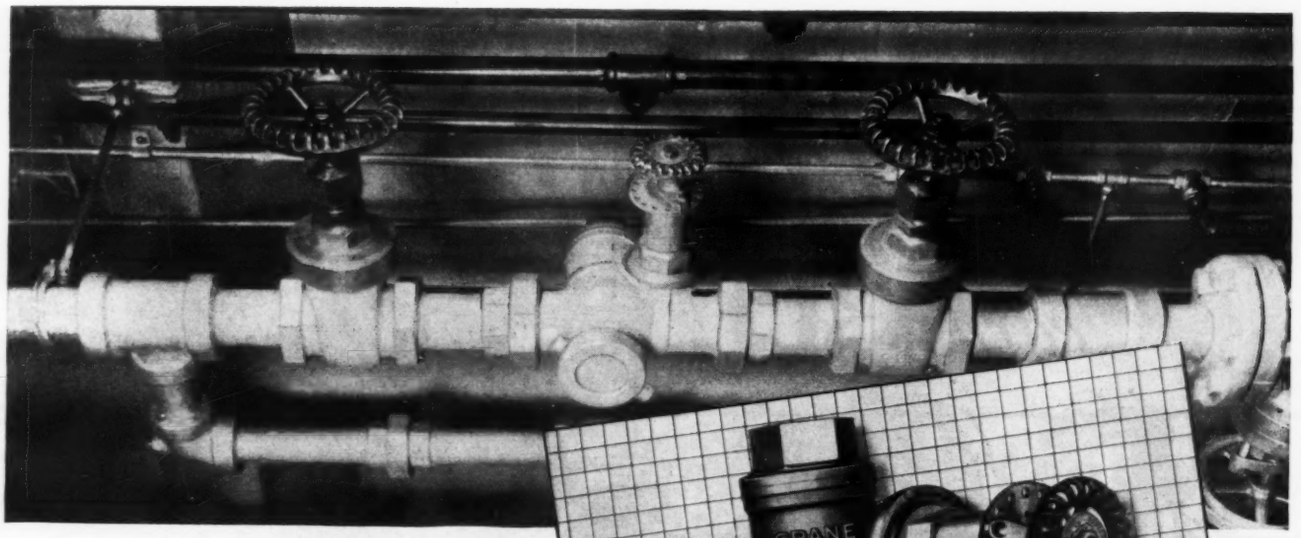
POWER TRANSMISSION COUNCIL

1 ATLANTIC STREET, STAMFORD, CONN.

A research association of producers and distributors of power, power units and mechanical equipment for the transmission of power.

MODERN · PTC · GROUP · DRIVE

A POWER DOLLAR SAVED IS A PROFIT DOLLAR EARNED



THE RIGHT PRESSURE IN THE RIGHT PLACE

CRANE
CRANE NO. 960 PRESSURE REGULATOR
1 A PRESSURE REGULATOR, NOT JUST A REDUCING VALVE.
2 THE NO. 960 WILL MAINTAIN THE DESIRED REDUCED PRESSURE WHETHER A LARGE OR SMALL QUANTITY OF STEAM OR AIR IS BEING CONSUMED.
3 SHUTS OFF POSITIVELY, PREVENTING BUILDING UP OF SERVICE PRESSURE WHEN DEMAND STOPS.
4 SIMPLE IN OPERATION AND CONSTRUCTION, WITH ALL PARTS READILY ACCESSIBLE FOR INSPECTION.
5 ONE REGULATOR, WHEN SIZE IS PROPERLY CHOSEN ON BASIS OF CAPACITY, WILL ACCOMPLISH A LARGE REDUCTION BETWEEN INITIAL AND SERVICE PRESSURE.

● Economy dictates the operation of more than one mechanism and the supplying of more than one process with a single source of steam. But the service pressure required for such applications may vary considerably. Accurate regulation can be secured with a Crane No. 960 Pressure Regulator, which at the same time will accomplish a large reduction from initial pressure.

Dry cans, slashers, vats, and steam heating systems are efficiently supplied from 250 pound (saturated) initial pressures, with the No. 960. It can be effectively used also on superheated steam, up to 500° F., and on compressed air.

Simplicity of operation and accessibility for inspection and maintenance are inherent in the design of the No. 960. Its advantages are typical of those encountered in all Crane valves and fittings for steam, air, and other fluids used in the modern textile plant. Complete stocks are maintained at a nearby branch or distributor's.

Let Profits Pay for Plant Improvements. Use the Crane Finance Plan.

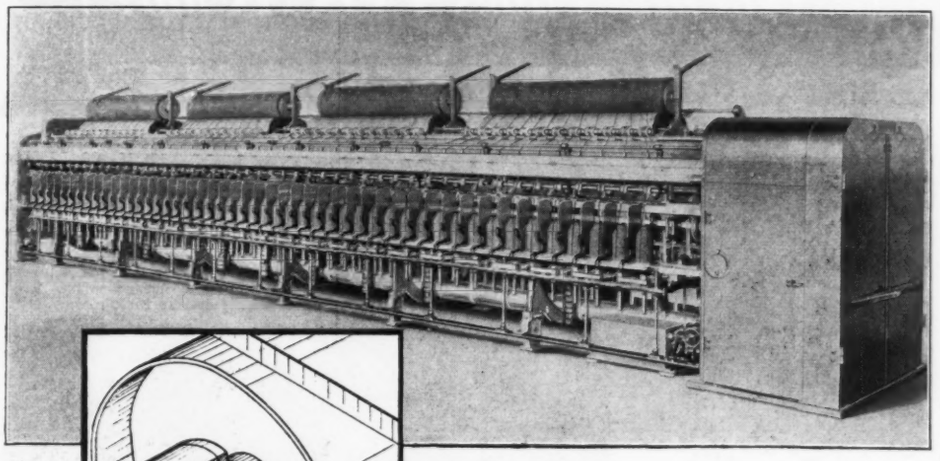
CRANE

CRANE CO., GENERAL OFFICES: 836 S. MICHIGAN AVE., CHICAGO, ILL. • NEW YORK: 23 W. 44TH STREET

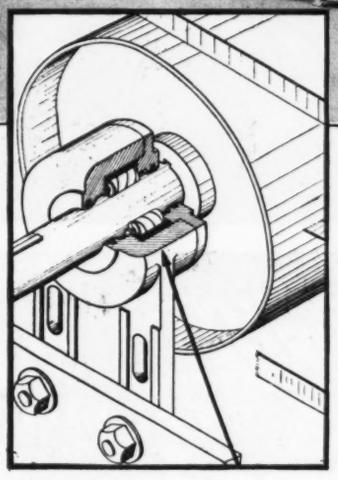
Branches and Sales Offices in One Hundred and Sixty Cities

VALVES, FITTINGS, FABRICATED PIPE, PUMPS, HEATING AND PLUMBING MATERIAL

MANY HYATTS IN WHITIN WOOLEN MACHINES



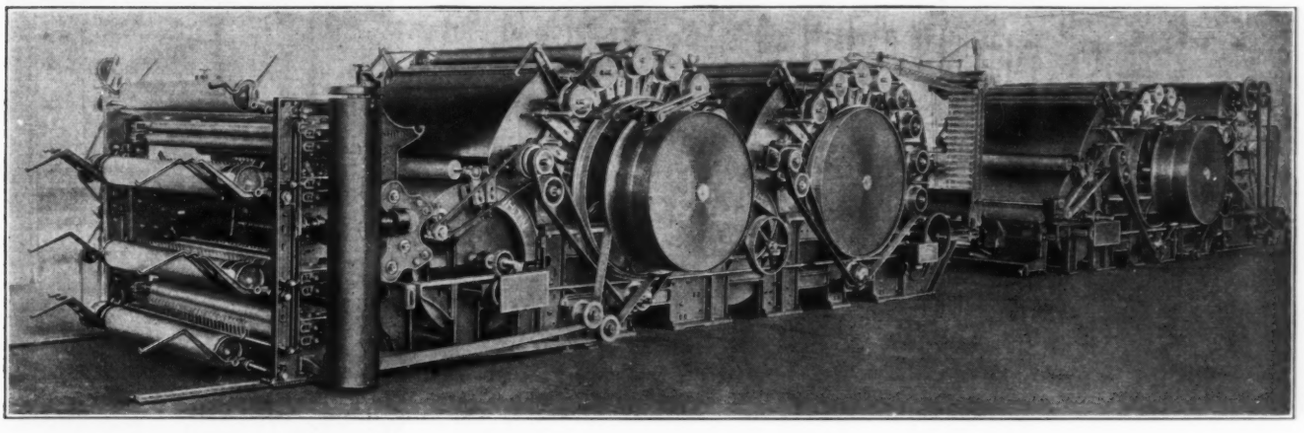
Over 40 Hyatt Roller Bearings are used in the Model "D" spinning frame illustrated opposite. In the woolen card pictured below, Hyatts are applied to main cylinders, fancy rolls, drive shafts and condenser.



Cutaway shows Hyatt bearing used as standard equipment on cylinder arbors of the wool spinning frame.

It's the same old story, but it still holds good—simpler construction, easier installation, lower maintenance costs, stronger bearings and longer life. Reasons why Whitin Machine Works use Hyatt Roller Bearings as standard equipment in their wool spinning frames and wool cards. Hyatts help you produce more and better cloth at less cost. Specify them by name for all of your textile machinery.

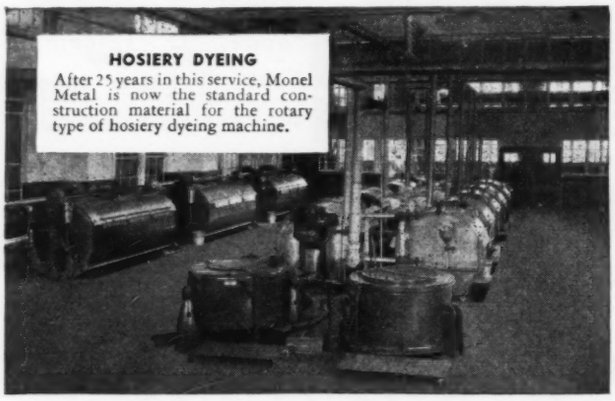
HYATT ROLLER BEARING COMPANY
P. O. Box 476 - - Newark, New Jersey



HYATT
ROLLER BEARINGS
PRODUCT OF GENERAL MOTORS

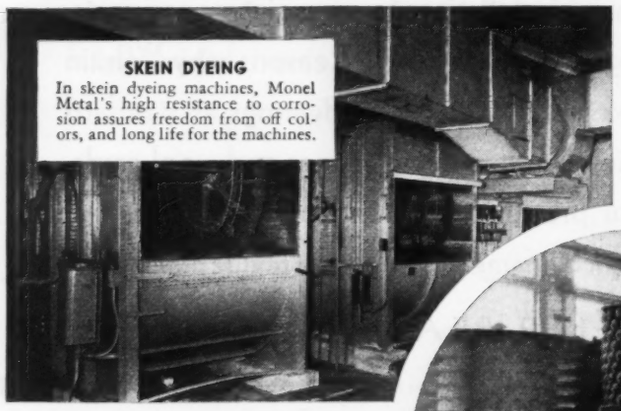
Which of these Machines does YOUR *job?*

MONEL METAL MEETS THE DEMANDS OF *EVERY* TYPE OF EQUIPMENT YOU SEE HERE

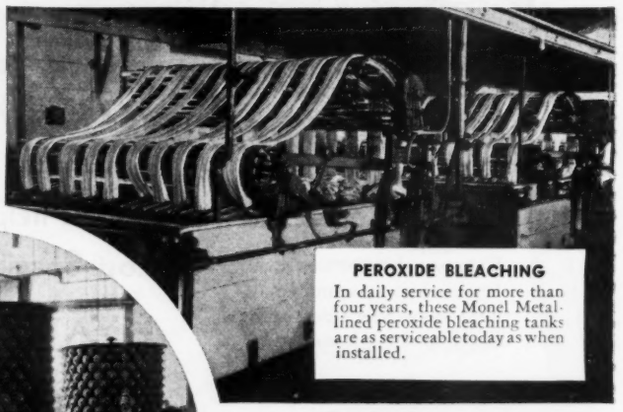


HOSIERY DYEING
After 25 years in this service, Monel Metal is now the standard construction material for the rotary type of hosiery dyeing machine.

HAND DYEING
Self supporting Monel Metal tanks, also Monel Metal-lined wood tanks for hand skein dyeing. Monel Metal's corrosion resistance and strength make it widely used in these tanks.

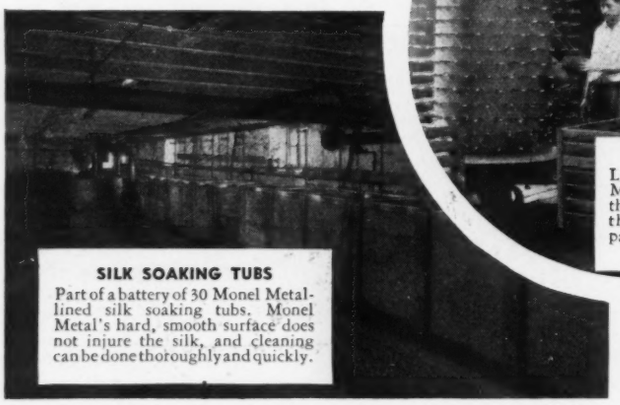


SKEIN DYEING
In skein dyeing machines, Monel Metal's high resistance to corrosion assures freedom from off colors, and long life for the machines.

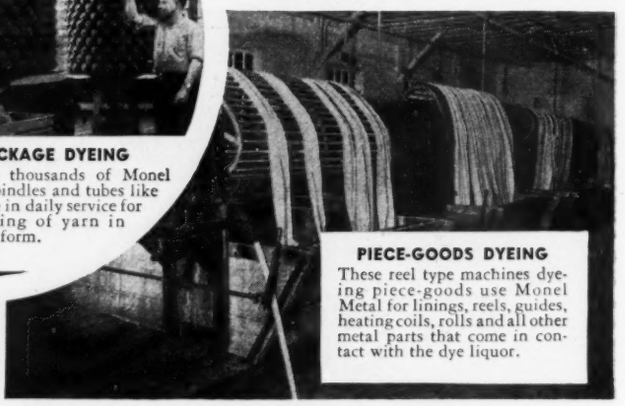


PEROXIDE BLEACHING
In daily service for more than four years, these Monel Metal-lined peroxide bleaching tanks are as serviceable today as when installed.

PACKAGE DYEING
Literally thousands of Monel Metal spindles and tubes like these are in daily service for the dyeing of yarn in package form.



SILK SOAKING TUBS
Part of a battery of 30 Monel Metal-lined silk soaking tubs. Monel Metal's hard, smooth surface does not injure the silk, and cleaning can be done thoroughly and quickly.



PIECE-GOODS DYEING
These reel type machines dyeing piece-goods use Monel Metal for linings, reels, guides, heating coils, rolls and all other metal parts that come in contact with the dye liquor.

ANY metal which handles successfully such a wide variety of jobs as are represented on this page MUST have qualities which dyers cannot easily do without. Let's see what are these qualities.

First, Monel Metal is strong and tough; you can often use lighter weights than you can with other metals, to do the same job. Monel Metal does not rust, and has proven its resistance to corrosion from most dye liquors. It does not absorb colors; hence no time is lost in time and labor consuming boil-outs. Its surface remains smooth... no chance of injuring the materials it touches.

Year after year it does your work as you would have it done. And it is still giving stout service when other materials have had to be replaced.

You are doing perhaps only one job of the many shown here. But all these qualities which make Monel Metal indispensable to many branches of dyeing are equally at your service, whether in one job or many.

Write us for copies of literature on Monel Metal in the dyehouse.

• • •

THE INTERNATIONAL NICKEL COMPANY, INC.
67 WALL STREET NEW YORK, N. Y.

Monel Metal

Monel Metal is a registered trade-mark applied to an alloy containing approximately two-thirds Nickel and one-third copper. Monel Metal is mined, smelted, refined, rolled and marketed solely by International Nickel.

MONEL METAL

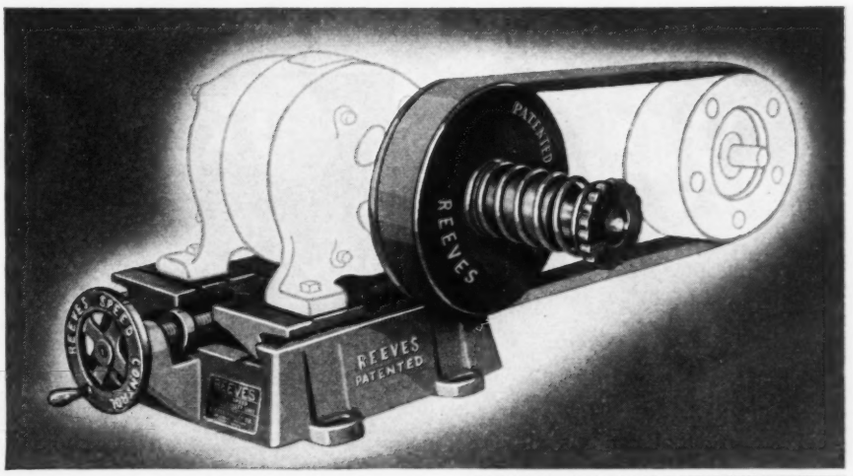
Sensitive, Accurate Speed Adjustability Through DIRECT REEVES DRIVE....

Any Speed Over 3:1 Range Instantly Secured by Merely Turning Convenient Control Handwheel

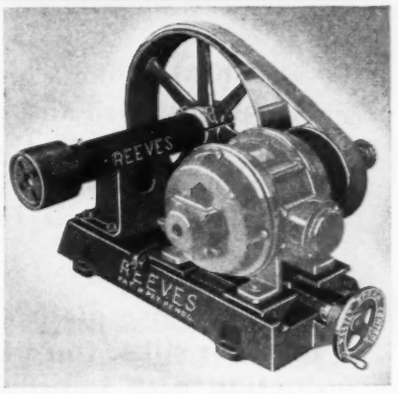
The REEVES Vari-Speed Motor Pulley is a simple, compact variable speed unit, applicable *directly* to standard shaft extension of *any* constant speed motor. It forms the actual driving element between motor and machine.

This efficient drive provides exactly the infinite speed regulation needed on machines of light horsepower requirements and where speed ratios not exceeding 3:1 are adequate. Operator receives precisely the speed he wants quickly, smoothly, accurately. . . . Furnished in seven sizes—fractional to 7½ h. p. Write REEVES engineers for latest Vari-Speed Motor Pulley Catalog—or for specific information relative to your individual speed control needs.

•

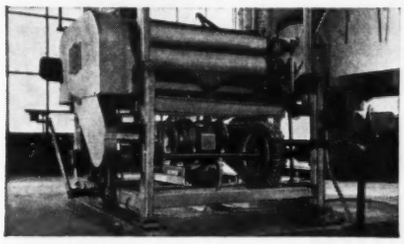


At top: ***Standard* REEVES *Vari-Speed Motor Pulley. This is design for power requirements from ⅛ h. p. to 1½ h. p.***



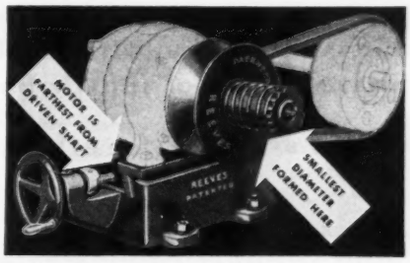
At right: REEVES *Vari-Speed Motor Pulley—Countershaft Unit.*

TUBE-TEX Machines for knitted fabrics are extensively equipped with the REEVES Vari-Speed Motor Pulley to provide sensitive and accurate speed regulation.



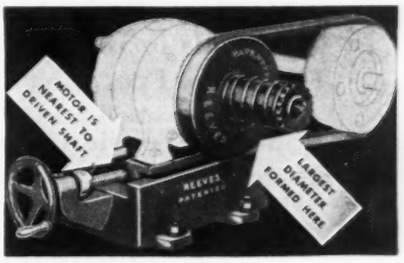
TUBE-TEX "C" Range Machine equipped with REEVES Vari-Speed Motor Pulley. *Correct speed variation* to compensate for differences in temperature, humidity, moisture content of cloth and type of yarn, is *accurately* secured.

Operating Principle of REEVES Vari-Speed Motor Pulley



Position at Minimum Speed

When motor is *farthest* away from driven shaft, V-belt assumes *smallest* diameter formed by discs, and *minimum* speed is obtained on driven pulley and machine.



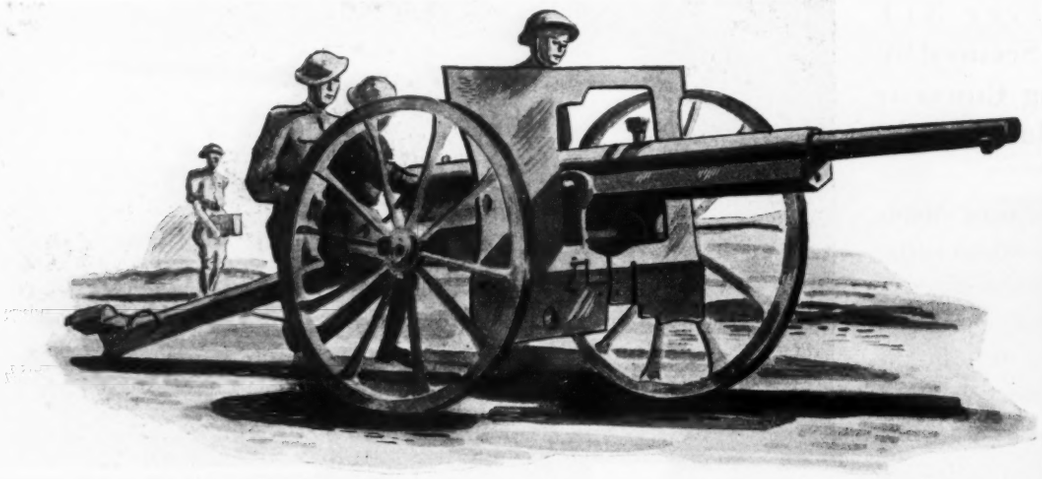
Position at Maximum Speed

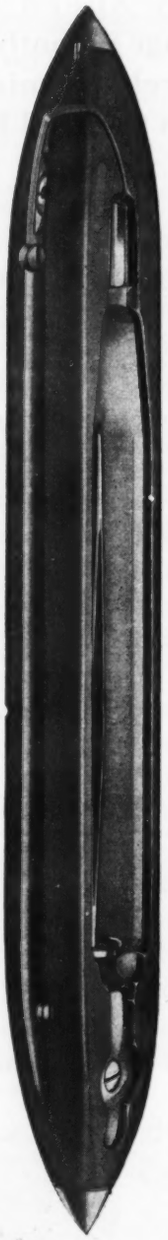
When motor is nearest to driven shaft, V-belt assumes *largest* diameter formed by discs, and *maximum* speed is obtained on driven pulley and machine regulated.

REEVES PULLEY COMPANY • COLUMBUS, INDIANA

• ***Look to* REEVES *for Accuracy in Speed Regulation*** •

HOW ABOUT *Your* AMMUNITION ?





A LOOM is like a gun --- to be effective it must be skillfully manned and must have the proper ammunition! The "ammunition" of the looms are the shuttles they "fire" from box to box and it is the way in which these shuttles operate as they are shot back and forth that spells efficiency for the looms.

If you use plain or shuttle-changing looms for weaving rayon or silks, you will get better, faster and smoother production with improved U S Unit Tension Shuttles. These shuttles have already proved their efficiency in leading plants of this country and abroad. They speed up production because they eliminate loom stoppage to replace worn elastics, felts, pads or mops. Used in combination with the U S Hand Threading Eye, they eliminate the use of shuttle hooks.

Special Tension devices also available for other classes of fabrics.

Particulars and samples submitted on request

U S BOBBIN & SHUTTLE CO.

Manchester, New Hampshire

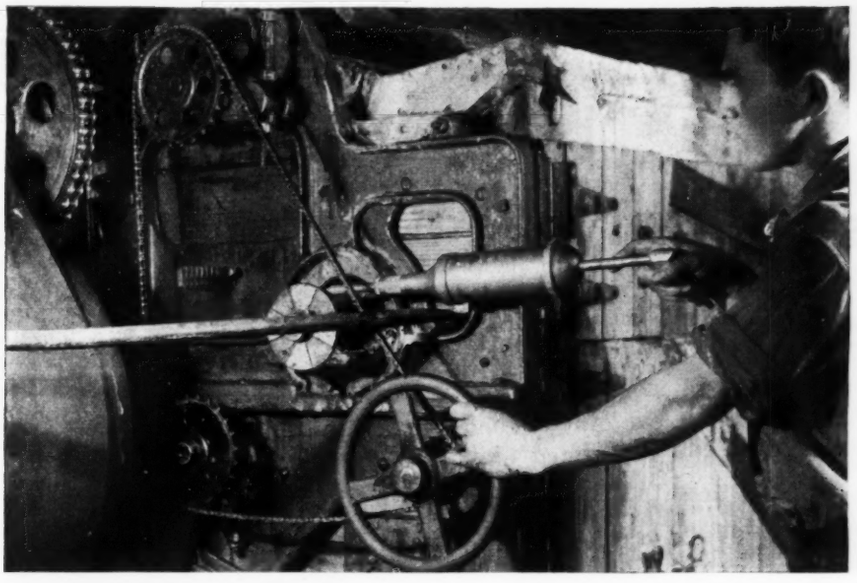
Branches: Providence, R. I.; Lawrence, Mass.; Philadelphia, Pa.; Monticello, Ga.; Charlotte, N. C.; Greenville, S. C.; Johnson City, Tenn.

Chicago Agent: Albert R. Breen, 2650 Coyne St.

BETTER BOBBINS • SPOOLS • CONES • SHUTTLES

CUT YOUR COSTS THREE WAYS WITH *Alemite* CONTROLLED LUBRICATION!

Chatham Mfg. Co. Reports
Minimum Contamination of Material—
Less Frequent Lubrication—
Reduced Lubricant Consumption



ABOVE—This Alemite Gun delivers an accurately measured quantity of lubricant to the ball bearings on this Woonsocket Napping Machine. Makes lubrication necessary only four times yearly.

AT LEFT—Using an Alemite Gun to lubricate the guide roller bearing on a Rodney Hunt Fulling Machine. Formerly oiled twice daily; now Alemited once a week! Labor saved! Lubricant saved! Time saved!

NOW you can greatly reduce the frequency of lubrication—cut the cost of lubricants and labor—and contamination of materials—just by using the same modern method employed so successfully by Chatham Mfg. Co. and hundreds of others.

When those famous mills in Winston-Salem, N. C., lubricated their machines with fluid oil, they found that the oil often worked its way over the machinery. Many of the beautiful Chatham blankets, woolen suitings, and sheets and cases were contaminated by oil, with heavy loss.

Now they're using Alemite Controlled Lubrication. The lubricant stays where it's put—in the bearings. Contamination of their products is now unheard of!

Furthermore, plain bearings on the napping machine are now Alemited once in three days instead of being oiled twice a day. Roller bearings on the New Express 12-Strand Mill are Alemited once a week instead of being oiled twice a day!

If your mills are still using old-fashioned lubricating methods, Alemite Controlled Lubrication can cut your costs three ways—maybe more! Also makes your plant safer by eliminating slippery floors and oil soaked machinery—and reducing fire and accident hazards.

You will be interested in a new manual featuring and describing the application of Alemite Systems to industrial machinery. Write for "The Case of Alemite vs. Friction." It's free.

ALEMITE CORPORATION
A Division of Stewart-Warner Corporation
1828 Diversey Parkway Chicago, Ill.

ALEMITE
Controlled Lubrication

Enjoy Horace Heidt and his Alemite Brigadiers every Thursday at 10:00 P. M. Eastern time on Coast-to-Coast Columbia network.

ANNOUNCEMENT OF IMPORTANCE TO THE TEXTILE INDUSTRY!

ARMOUR AND COMPANY takes great pleasure in announcing—after several years of laboratory experiments and research—the introduction of a new pre-tested vegetable oil soap flake called CERTIFIED FLAKES. In the mills in which it has already been introduced, this amazing new soap product has aroused unusual interest and comment.

CERTIFIED FLAKES is almost instantly soluble and rinses quicker than any similar type of soap ever placed on the market.

Here's What Some Mill Men Say:

In a worsted mill in Pennsylvania, after running a light fulling soap (3½ oz. soap and 1½ oz. soda ash per gallon) on 14-oz. cloth, both on a set of pieces in the fulling mill, and one on the washers, the superintendent said it was the best soap he had ever used.

A silk throwster plant in New York on a test advised the take-up tests and the general action of the soap was O. K. in every respect. (Incidentally this mill has a very high rating, and the absorptive properties being tested by this concern indicates the product has merit for this type of work.)

A yarn dyeing company in New York made a test, and at once requested a price on a carload.

A hosiery mill in North Carolina tested this new product, and when the salesman accompanied the buyer into the dye house the dye man asked the buyer to look at the best soap that had ever been in their mill.

Another mill in North Carolina made a test of Certified Flakes and then ordered several barrels.

A laundry in North Carolina purchased our new soap to be used on blankets, silks, etc. and it was the first soap order received from this account.

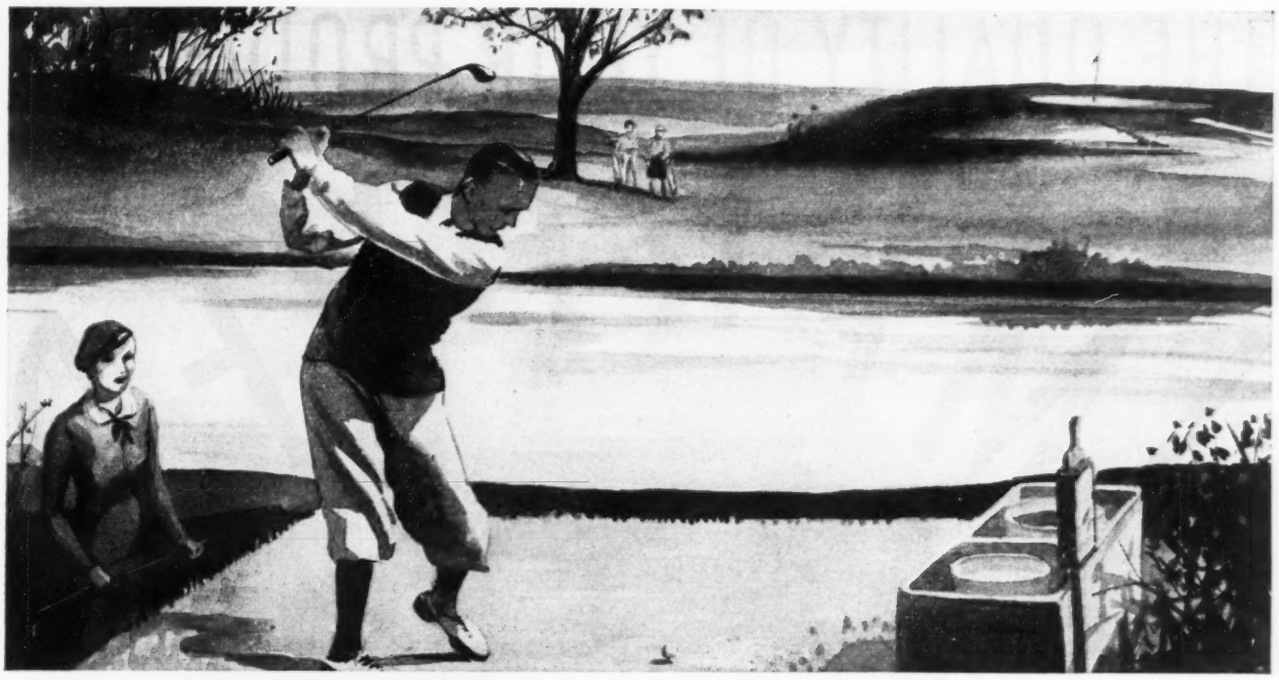
A woolen mill in Maine enthusiastically okayed the soap for heavy fulling and after-scouring.

A wool combing company in New Hampshire made a test and immediately ordered 5 more barrels, then 20 more barrels.

A finishing company made a test and immediately ordered 5 more barrels.

Order a test barrel or bag of Armour's CERTIFIED FLAKES today. Packed in 150-lb. barrels and 110-lb. bags. You'll find it the most satisfactory soap ever used in your mill operations.

INDUSTRIAL SOAP DEPARTMENT
ARMOUR AND COMPANY
1355 W. 31st STREET • CHICAGO, ILLINOIS



WATER HAZARD

● Spring is in the air . . . and with it . . . plans for golf. As usual, this treacherous tee-shot over the lake will ruin many a temper and score.

Water is so harmless looking! But it certainly can play you false. For years, textile owners have failed to realize that untreated water used in wet-processing lowers the quality of finished goods. Supply water must be *absolutely clear, soft and colorless* to meet modern-day requirements.

Textile experts will tell you that practically *all* mill water supplies must be properly filtered or softened, or perhaps even further treated, to permit production of the highest quality of fabrics.

Because of this all-important fact, more than 1,000 textile mills now use Permutit Water Conditioning Equipment.

The benefits from such equipment are immediately noticeable. There are fewer reruns and rejections, and less yarn breakage . . . because soft water eliminates harsh insoluble curds, and fibres come through clean and pliable. Soap, soda and bleach are saved. And boiler-tube repairs and replacements are reduced to a minimum.

Wouldn't you like to know more about water conditioning and how it can benefit your mill? Mail the coupon below for information. Learn how Permutit equipment *pays for itself* in two short years.

Permutit Water Conditioning Equipment may now be purchased under the terms of the National Housing Act. These loans are not made by the Government, but by your own banker . . . or they can be arranged through Permutit. The terms of payment allow gradual liquidation over a period of years, so your payments are more than met by the savings effected by Permutit.

Permutit

Water Conditioning Equipment

THE PERMUTIT COMPANY, Dept. B1, 330 West 42nd St., New York City

Please send me, without obligation, complete details about the purchase of Permutit equipment under the terms of the National Housing Act.

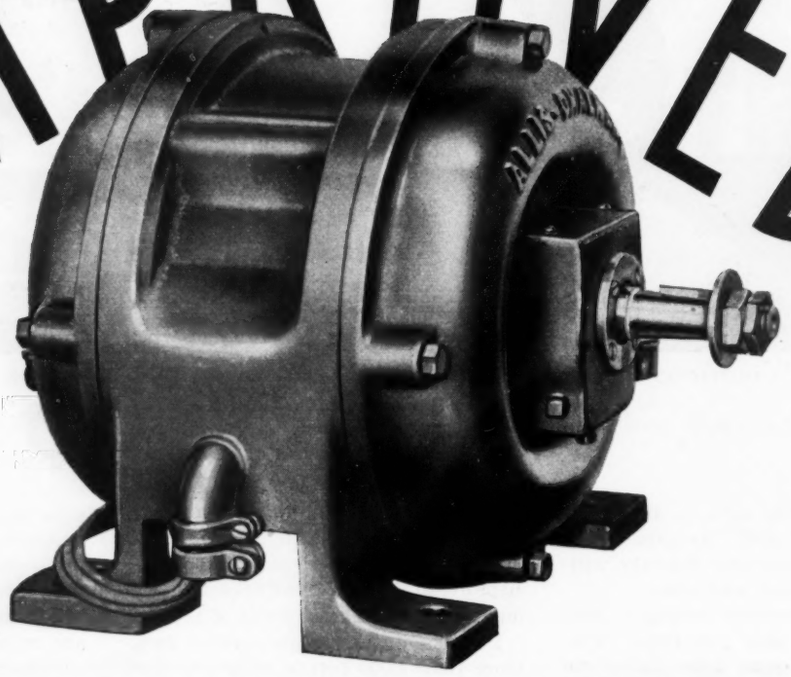
Name _____

Position _____

Company _____

Address _____ City _____

THE QUALITY OF YOUR PRODUCT IS IMPROVED



by this

SPECIAL LOOM MOTOR

The newly designed Allis-Chalmers Loom Motor embodies all the latest developments and features that are of importance to loom application.

The peculiarities and exacting requirements of this application have been carefully studied and a special motor built accordingly.

The Allis-Chalmers Loom Motor is designed for low slip, resulting in close speed regulation from no load to full load. Its design, both electrically and mechanically, greatly improves loom performance, not only in efficiency but also in quality of product.

Some of the Features of the Allis-Chalmers Loom Motor:

1. Waste-packed sleeve bearings.
2. Indestructible rotor with bars silver brazed to the end rings.
3. Heavy cast iron bearing housings for rigid support of the rotor.
4. Totally enclosed to eliminate effects of dust and lint.
5. Stator frame of cast steel with feet cast integral.
6. Stator coils thoroughly insulated under process which makes windings moisture resisting.
7. Wound stator finally treated in special insulating varnish which provides a winding of high dielectric value and mechanical strength, a thorough protection against vibration in high speed loom service.
8. Ample reserve capacity for breaking in new looms.

MOTORS

FOR EVERY PURPOSE

ALLIS-CHALMERS MFG. CO. MILWAUKEE, WISCONSIN

Goodrich NEEDED WATER

MARTHA MILLS, *Textile Division*
B. F. GOODRICH CO.
Silvertown, Georgia

FROM intake to reservoir, without the intervention of human hand, the new water treatment plant of Martha Mills will produce a million gallons a day.

It is typical of Goodrich to install this unique filtration plant, with its automatic control of flow, of chemicals, of mixers and of tank levels.

And we are proud that they brought this special problem to Robert and Company.

Our engineering experience over a period of sixteen years has given us the ability to cope with virtually every conceivable problem in the field, and the facilities to approach any technical problem with confidence.

ROBERT AND COMPANY
ATLANTA INCORPORATED GEORGIA
Architects and Engineers

WHEN THE QUESTION IS • • •

SPLASHPROOFING

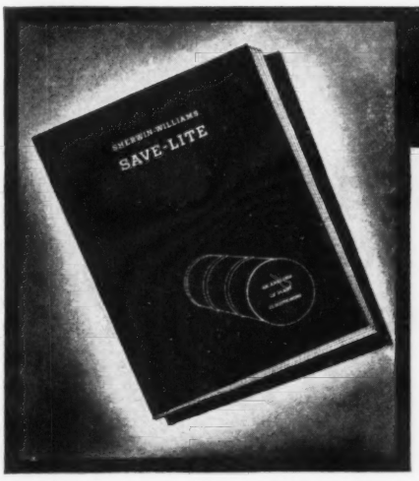
Taking the storm in a stride...unafraid of muddy splashes...and rain!...sleek hose protected from splash and mud with the newest development in splashproofing. ● AQUAROL has been IMPROVED!...an advancement in splashproofing hitherto unattained! It produces more water repellency than ordinary compounds...giving at the same time more weight or body ...much greater elasticity...and softer "feel". ● AQUAROL removes crepey or sleazy stitches ...imparts an unusual finish. ● AQUAROL can also be used on piece goods to produce a water repellent fabric. ● Let us demonstrate AQUAROL at your plant.

ARKANSAS CO. INC.
233 BROADWAY • NEW YORK

THE ANSWER IS • • •

AQUAROL

REG. U. S. PAT. OFF.



THIS REPORT SHOULD BE IN EVERY PLANT SUPERINTENDENT & MAINTENANCE ENGINEER'S HANDS

1. A COOPERATIVE STUDY ON LIGHTING

The achievement of ideal seeing conditions does not rest with paint alone. To make the Save-Lite report sound, scientific, practical and authentic, it was prepared in cooperation with the Better Vision Institute and the National Better Light-Better Sight Council.

2. CHECK POINTS ON PAINT'S FUNCTIONS

Dollar for Dollar Service depends upon how well you capitalize on paint's possibilities as a maintenance, appearance and illumination factor. 18 practical and constructive check points are included, by which you may check your own plant.

3. SPECIAL PICTURE SECTION

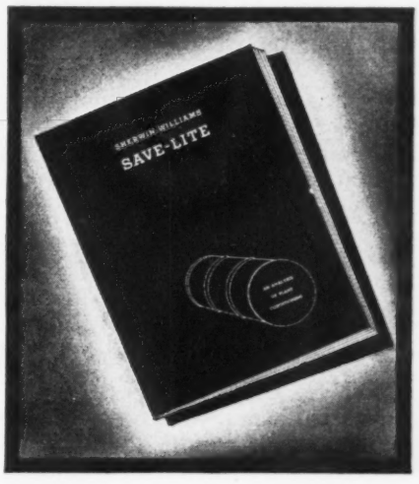
Eight pages of photos comprising laboratory studies in light reflection, before and after views, and pictures of outstanding "plant-conditioned" companies show graphically paint's part in modern industry.

4. YOUR LIGHTING STANDARDS

Production efficiency, unit costs, accident and spoilage control, etc., are so closely related to proper lighting, you'll find it profitable to check your plant by the chart on Recommended Standards of Illumination included in this booklet. It is based on research by sight, lighting and production authorities. Have the S-W engineer check your plant.

5. CHECK POINTS ON PAINT AND PAINTING

Every industry has conditions peculiar to it that affect the life of the paint. Fumes, temperature extremes, moisture, etc. This report tells what a mill-white paint should be, how to apply it, and what the S-W Paint Engineering Service means to painting economies.



6. ABOUT LIGHT REFLECTION

This new Save-Lite Report—"An Analysis of Plant Conditioning," tells how to use Light Reflection in putting wall and ceiling surfaces to work as illumination's first-aid for Better Light-Better Sight.

7. YOUR UNIT COSTS

Time study and efficiency engineers always turn to paint as a first step in reducing unit costs. "Improved Seeing" by means of white paint is but one of paint's contributions. You'll be interested in other ways cited.

8. CASE HISTORIES

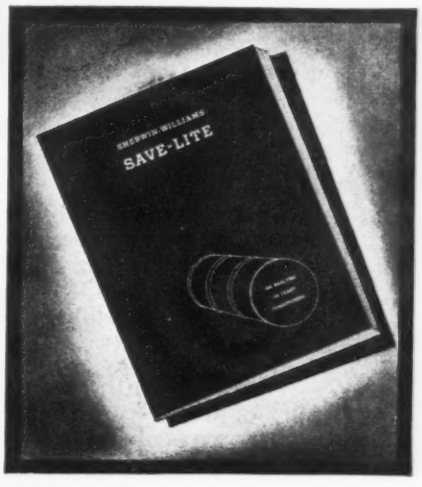
The lighting story is told in the most convincing manner by case-histories of office and plant interiors. We have included these, together with illustrations and charts. The studies and the data are by technical engineers.

9. GRAPHIC PAINTING MAINTENANCE GUIDE

From foundation to roof, some special type of paint is at your command to perform a particular service most efficiently and at a minimum cost. Your selection of the right paint and proper application governs the service you will receive. The graphic chart in the Save-Lite booklet shows at a glance, the proper paint.

10. FREE TO ALL PLANT MEN

This "plant-conditioning" guide is for all plant superintendents, maintenance engineers and company officials, sent free upon request to The Sherwin-Williams Co., Dept., IMW-10, Cleveland, Ohio. It is more than a story on Save-Lite mill-white. It is a practical reference guide containing photos, graphs, charts and data valuable to all industrial men. Avail yourself of a copy by filling out the coupon below.



The Sherwin-Williams Co. Dept. IMW-10
Cleveland, Ohio

I am interested in receiving free, a copy of the new Sherwin-Williams Save-Lite Catalog—"An Analysis of Plant Conditioning." There is no obligation to me.

Name
& Position Please Print

Company
& Address

City & State

COVER THE EARTH

SHERWIN-WILLIAMS SAVE-LITE

THE PLANT CONDITIONING PAINT

Thirty-second Annual
KNITTING ARTS EXHIBITION
"THE MARKET PLACE OF THE KNIT GOODS TRADE"
The Commercial Museum, Philadelphia, Pa.
April 20-21-22-23-24, 1936

UNDER THE AUSPICES

NATIONAL ASSOCIATION OF HOSIERY MANUFACTURERS and

THE UNDERWEAR INSTITUTE

Each year the Commercial Museum is transformed into a vast market place where buyers congregate from all parts of the United States and Canada. Exhibitors present these buyers with instructive, educational, profitable and business-getting displays of every conceivable variety of equipment, product or service used in the thousands of mills and factories represented.

REPEATING EXHIBITORS ARE A TEST OF RESULTS

Established as a tried-and-true profit creating institution for many years, the Knitting Arts Exhibition boasts of an annual average of 93% of its exhibitors who repeat year after year. Of the number who do not repeat, at least half exhibit in alternate years. Rarely are exhibitors absent more than one year in succession.

The faith of these repeating exhibitors, together with the many new firms that are attracted each year by the far-reaching results obtained, accounts for the continual growth that has been shown by this efficient, business-building Exhibition.

HERE'S THE BRIDGE TO REACH FROM YOUR PRODUCT TO THE CUSTOMER'S DOLLAR

This Exhibition centralizes the knit goods trade. It is a complete factory, under one roof, where purchasing agents and mill executives can intelligently gather information and data on improvements and new devices. The convention, meetings, displays and worthwhile ideas assure a buying attendance. Increased sales, better business and an atmosphere of well being in the trade are the results of exhibiting manufacturers.

To YOU, with products to sell, an exhibit at this Exhibition presents a remarkable sales opportunity. There is no substitute for personal contact selling. Leading manufacturers WILL be there. You cannot afford to stay away.

The price of a space 100 square feet is only $150, and this includes booth complete with backwall, side partitions, desk, desk chair, Bentwood chairs, Crex rug, hat tree and regulation booth sign. Where electricity and steam are necessary, these are also included.

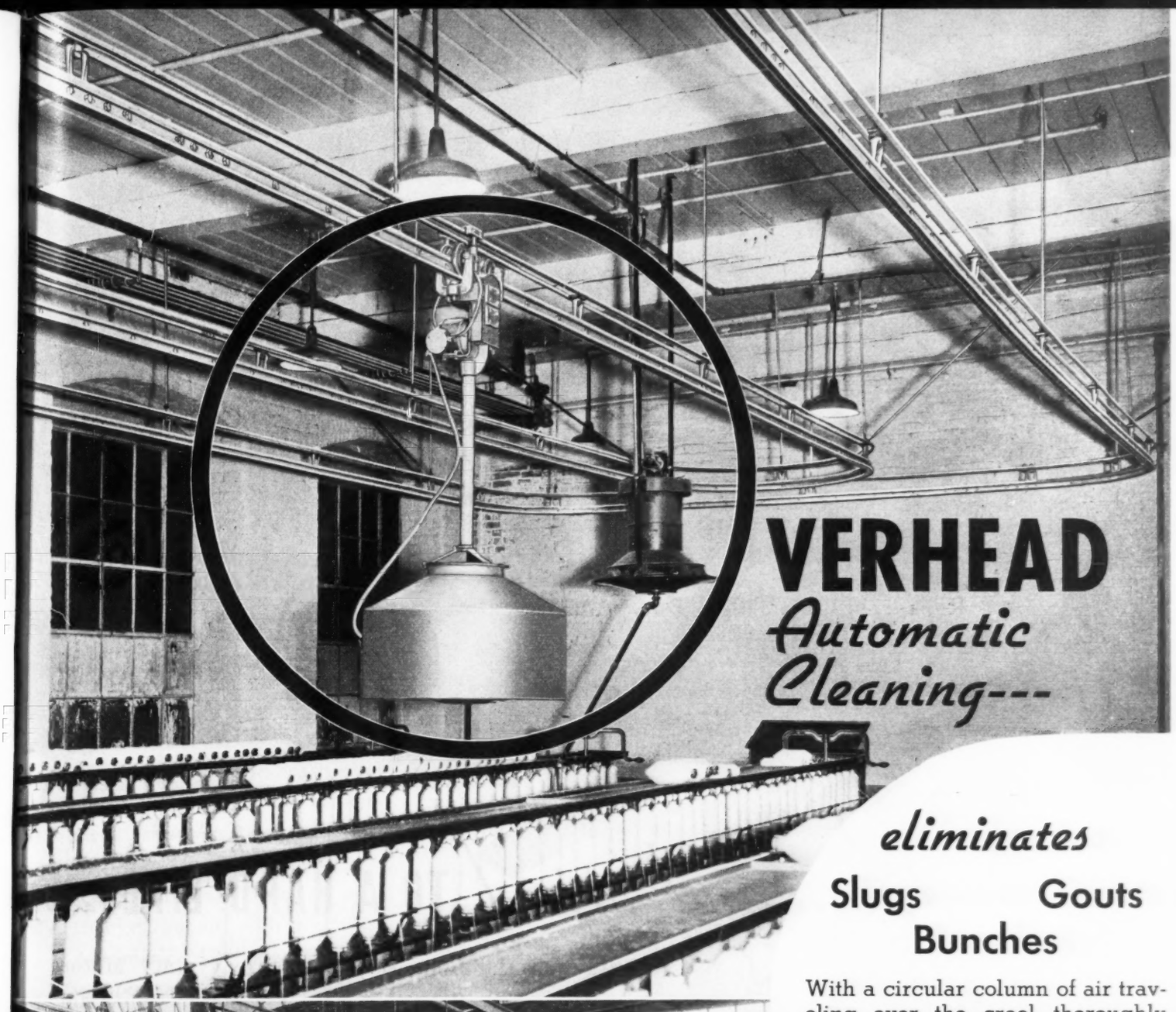
The better locations are going fast. It will be wise to apply at once to:

KNITTING ARTS EXHIBITION

ALBERT C. RAU, Manager

327 PARK SQUARE BUILDING **Boston, Mass.**

Reduced Rates on all Railroads



VERHEAD
Automatic Cleaning---

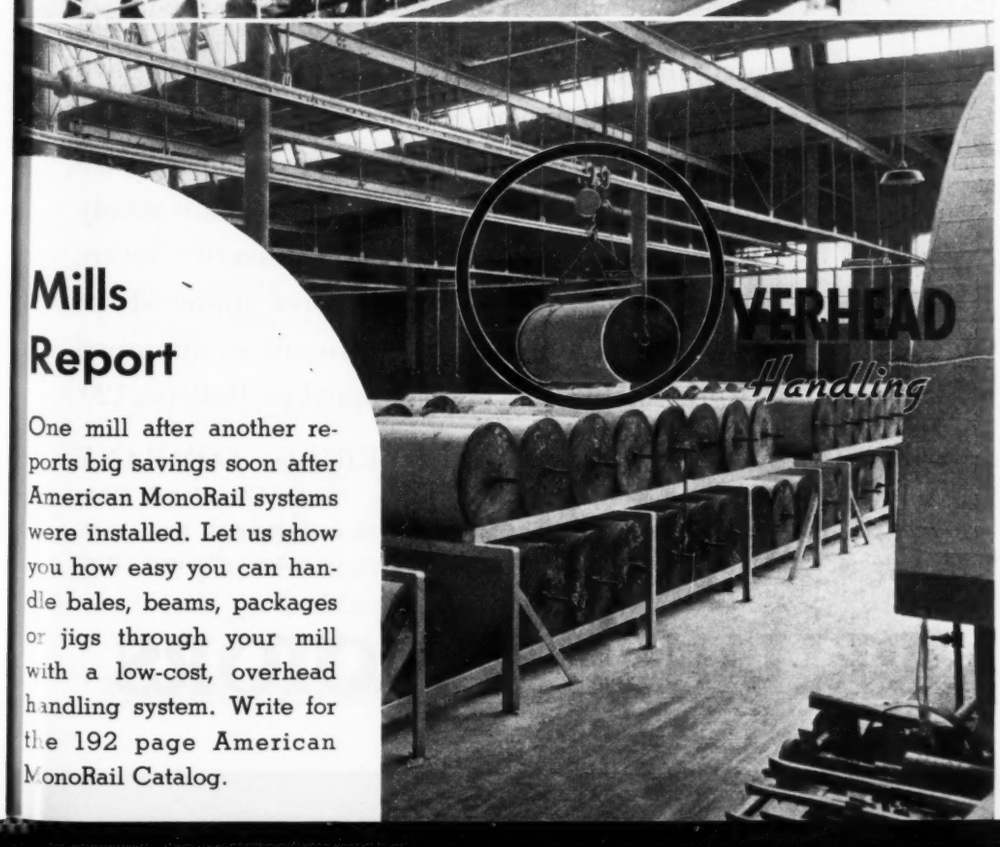
eliminates

Slugs Gouts Bunches

With a circular column of air traveling over the creel, thoroughly cleaning accumulated lint, spinners can give careful attention to spindles.

Better cleaning by a properly adjusted and perfectly timed overhead system, together with this extra care from spinners, practically eliminates slugs, gouts and bunches — reduces ends-down, stoppage and seconds—brings better yarn at reduced cost.

Why not let us show you how reasonably this can be done in your mill.



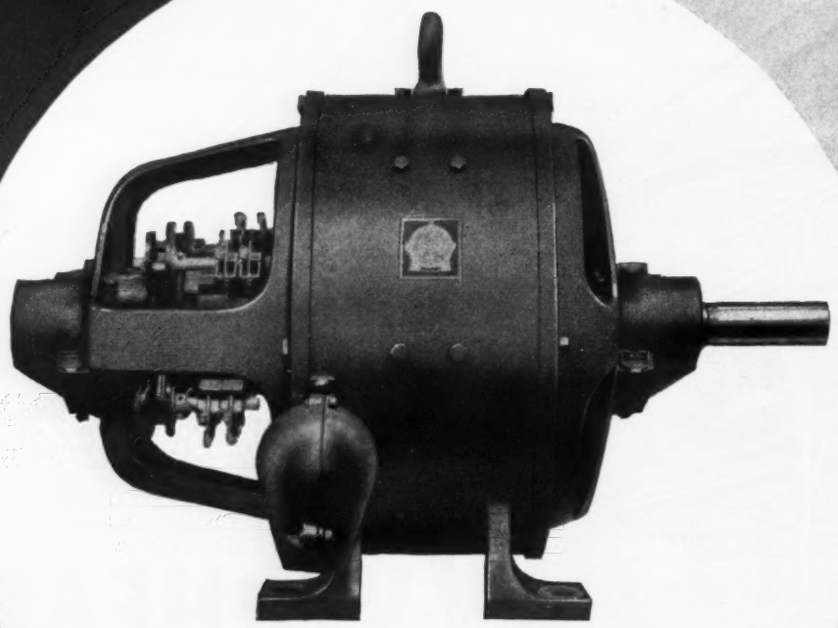
Mills Report

One mill after another reports big savings soon after American MonoRail systems were installed. Let us show you how easy you can handle bales, beams, packages or jigs through your mill with a low-cost, overhead handling system. Write for the 192 page American MonoRail Catalog.

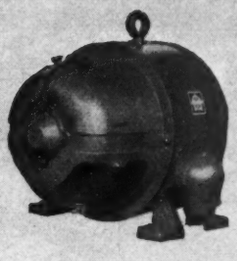
American
MONORAIL
Company

13106 ATHENS AVE.
CLEVELAND, O.

SOUTHERN REPRESENTATIVE:
CURRAN S. EASLEY
P. O. Box 755
Greenville, S. Carolina

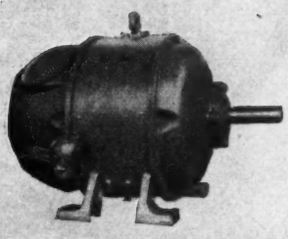


Reliance Type T Heavy Duty Motor
for Direct Current
Four Poles · Sleeve Bearings



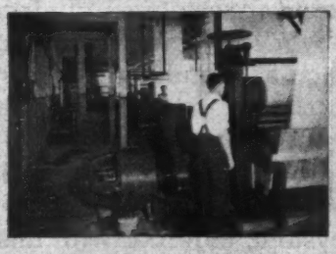
Ball-bearing motor with solid covers over top openings, screen covers over lower portion.

Reliance Vertical Type T Motor equipped with drip-proof covers.



Enclosed water-tight motor with ball-bearings. Hand-holes permit ready access to brush rigging and commutator.

Born and raised TO A HARD LIFE . .



Reliance Range Drives allow a straight-run layout which keeps cloth moving faster with more uniform results.

The 3-unit Reliance Range Drive on this Van Vlaanderen Print Washer maintains automatically the right tension on the cloth in all sections.

It was in 1915 that the Reliance Type T Heavy-duty Motor emerged from the composite experience of some 35 industrial engineers — husky and well born. The past two decades have seen it grow steadily more and more rugged, its development still attended by practical experts. Reliance Type T Motors are widely known for their significant endurance, for their steady operation and minimum upkeep, under the necessarily severe conditions of a hard life . . . Critical buyers have approved the Reliance Type T Motor by a repeat-purchase record we are proud to show . . . The principal details will be found in Bulletin 120.

RELIANCE ELECTRIC & ENGINEERING COMPANY
1088 Ivanhoe Road Cleveland, Ohio
Branches: Birmingham, Boston, Buffalo, Chicago, Cincinnati, Detroit, New York, Philadelphia, Pittsburgh. Representatives in other principal cities.

RELIANCE A·C D·C MOTORS

IT'S AN ILL WIND

that blows through open windows

In spinning and weaving rooms — open windows mean *lower humidity, local drafts, spotty conditions.* And this must always mean *ends-down, seconds, increased production costs.*

Keep windows closed — and change the air with a Parks Automatic Airchanger. This equipment brings into spinning and weaving rooms *carefully measured* quantities of outside air. By a patented feature, the Airchanger ties in humidifying with automatically controlled air change. It provides maximum cooling with constant humidity, uniformly distributed. It minimizes production difficulties, improves quality and rate of output, increases workers' efficiency.

With the Parks Automatic Airchanger, you get the same uniform air conditions obtainable from a central station system— *at a much lower cost . . .* because the Airchanger is designed to utilize your present humidifying system. Send the coupon below for complete information about the Parks Automatic Airchanger. Or check the line on the coupon that will bring an engineer to *explain* this equipment's advantages.

PARKS-CRAMER CO., FITCHBURG, MASS . . . CHARLOTTE, N. C.

PARKS *Certified* CLIMATE

Gentlemen: Please send me Booklet 235 on the Parks Automatic Airchanger ☐ You may have an engineer call ☐ (Please check)

Name .....

Company .....

Address .....

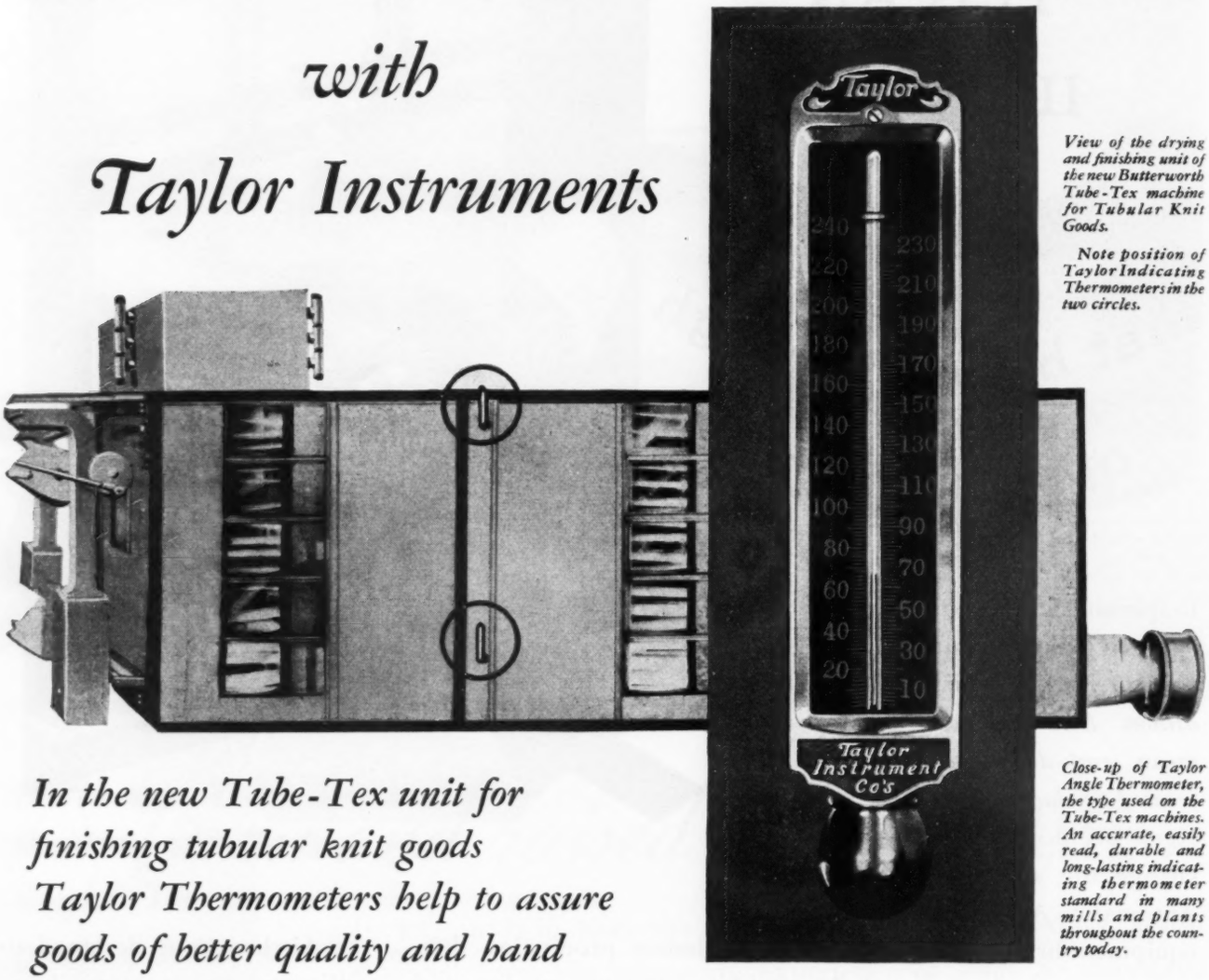
City ..... *State* .....

2296

WATCH DRYING TEMPERATURES

with

Taylor Instruments



View of the drying and finishing unit of the new Butterworth Tube-Tex machine for Tubular Knit Goods.

Note position of Taylor Indicating Thermometers in the two circles.

Close-up of Taylor Angle Thermometer, the type used on the Tube-Tex machines. An accurate, easily read, durable and long-lasting indicating thermometer standard in many mills and plants throughout the country today.

In the new Tube-Tex unit for finishing tubular knit goods Taylor Thermometers help to assure goods of better quality and hand

WATCHING over correct temperatures in textile mills has long been one of the most important jobs performed by Taylor Thermometers.

Now, on the new Butterworth Tube-Tex drying and conditioning unit for tubular knit goods, these instruments again prove their accuracy and reliability.

As a part of the Tube-Tex system, Taylor Thermometers help to produce a more uniformly dried and conditioned fabric. They are important in preventing over-drying and in maintaining *low temperature drying*, which assures a more uniformly dyed fabric and a finished cloth of finer quality and hand.

Wherever you need to keep temperature under close control in a textile mill—from slashing to finishing—you will find Taylor Instruments to help produce a more uniform and higher quality product at lowest possible cost. Taylor engineers, experienced in the problems of the industry, are able to specify and install the Taylor System of Temperature Control that will most efficiently, economically, and profitably meet your needs. Their duty is not to sell you individual instruments, but to apply their engineering skill to your specific temperature problem.

For this Textile Engineering Service, ask a Taylor Representative or write direct to Taylor Instrument Companies, Rochester, N. Y., or Toronto, Canada. Manufacturers in Great Britain —Short & Mason, Ltd., London, England.

Taylor

Indicating Recording • Controlling

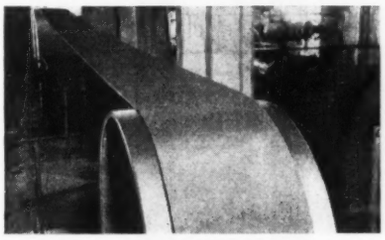
TEMPERATURE, PRESSURE *and* FLOW INSTRUMENTS

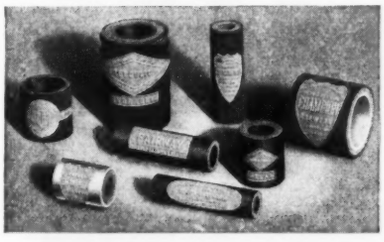
SERVICE

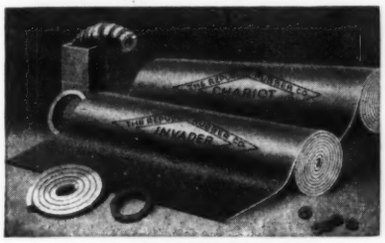
at These Points

Republic

BELTING, HOSE AND PACKING







• One reason for Republic's leadership is its long association with the nation's outstanding mill supply distributors. Their prompt, helpful and efficient service has proven a practical economy for all users of mechanical rubber products.

You gain valuable advantages through Republic's highly organized plan of distribution. The aid of factory experts on technical problems is combined with large, local warehouse stocks; active, local interest in your business; sound, local responsibility and all the benefits of frequent contacts, intimate knowledge of your needs and **immediate** delivery. Such service meets your usual or emergency requirements equally well, cuts deeply into your overhead costs and provides a strong safeguard to keep your production at highest efficiency.

THE REPUBLIC RUBBER CO.

YOUNGSTOWN, OHIO

MECHANICAL RUBBER PRODUCTS
FOR EVERY INDUSTRIAL REQUIREMENT

• ORDER REPUBLIC RUBBER PRODUCTS FROM YOUR DISTRIBUTOR •

For

SALES BUILDERS

SOUTHERN TEXTILES

New Designs Reproductions

JACOBS GRAPHIC ARTS CO.

CLINTON · S.C.

SUPERTEX - S

"BENDS WITH THE FOLDS"

You get soft pliable films —your prints won't crack

• The new printing gum that gives fine marks, greater color values and better penetration—*Supertex S*—is especially effective for use on weighted silks and Bemberg cloths. It leaves a soft and pliable film on the goods and prevents cracking of the printed object.

VAT GUMS

Vat Gum W-696T contains a special thickener manufactured exclusively by Jacques Wolf. It contains the necessary alkalies and hydrosulphites.

This product runs more satisfactorily on the machine than the plain British gum pastes. Maintaining a fluid body in the printing machine, it does not coagulate or run short.

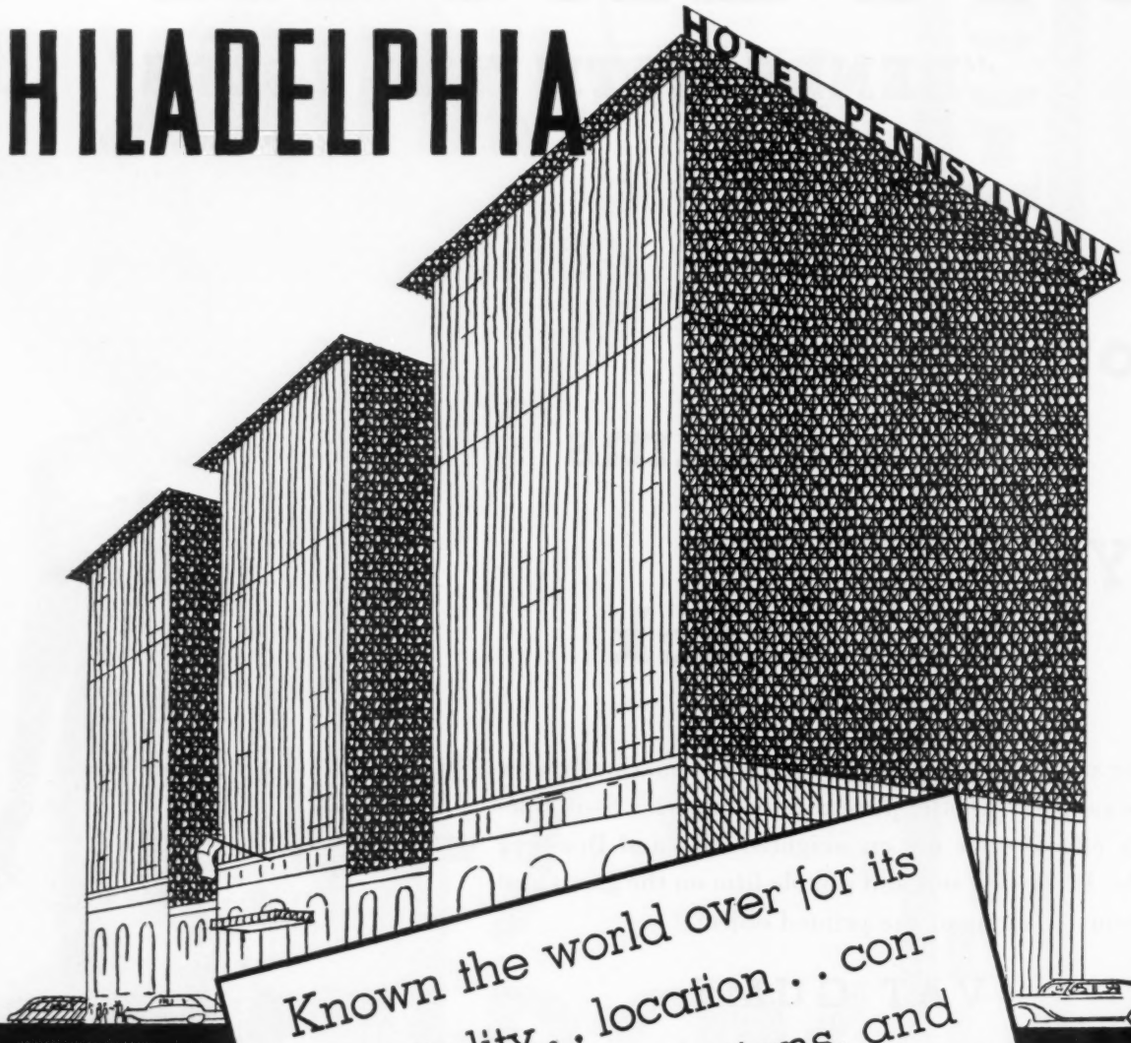
Printing Gum W-883—a powdered vat gum, is used extensively as a thickener for Rapidogens, Indigosols and Pharmasols. W-883 gives sharp lines and fine, smooth color values.

JACQUES WOLF & CO.

MANUFACTURING CHEMISTS AND IMPORTERS . . . PASSAIC, NEW JERSEY

Warehouses: Providence, R.I., Philadelphia, Pa., Utica, N.Y., Chicago, Ill., Greenville, S.C., Chattanooga, Tenn.

PHILADELPHIA



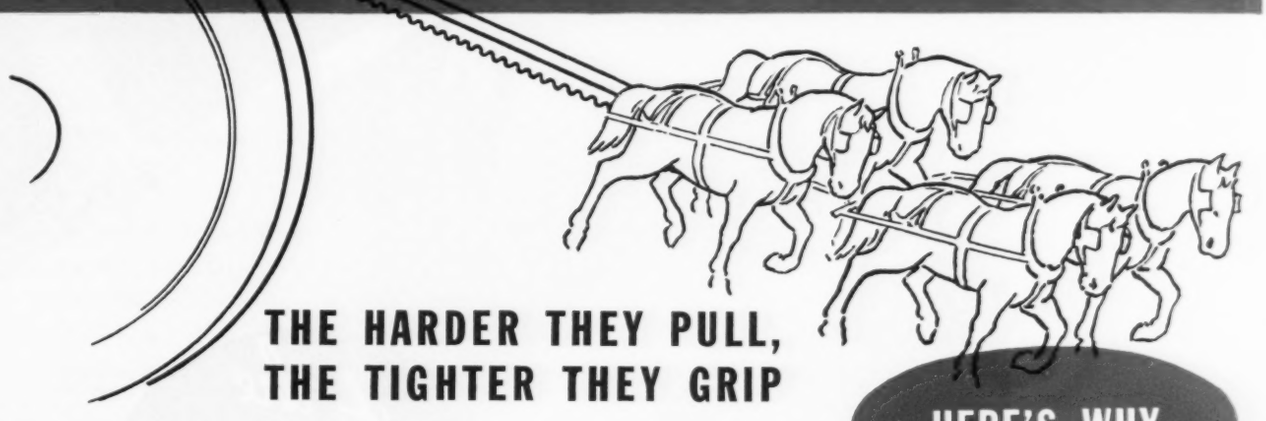
Known the world over for its hospitality . . location . . convenient to all stations, and only 10 minutes to the business section . . unlimited parking.

600 ROOMS
WITH BATH
$2.50 UP

HOTEL PENNSYLVANIA

39TH & CHESTNUT STREETS · PHILADELPHIA

DAYTON COG-BELTS HAVE TREMENDOUS PULLING POWER



THE HARDER THEY PULL, THE TIGHTER THEY GRIP

In thousands of industries, Dayton Cog-Belts are saving money and increasing production because they have patented, exclusive features found in no other belts.

Dayton's tremendous, sustained pulling power is the result of its positive wedging action in the pulley groove. It is the only die-cut belt with raw edges to form the driving surface.

The Dayton is the only belt with patented, laminated construction which gives maximum crosswise rigidity. There is no squashing in the pulley groove . . . no bulging and distortion. Dayton Cog-Belts have such leech-like gripping qualities that they insure a steady, uniform flow of power with less tension and less strain on bearings.

But that isn't all. Dayton Cog-Belts are "built-to-bend." They need no dressing. They save space. They last longer.

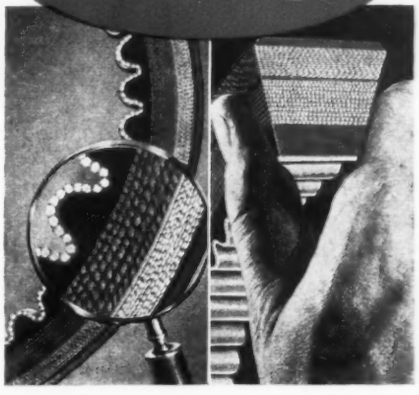
All of the many money-saving advantages of Dayton Cog-Belts are graphically illustrated and described in our big, new, 84-page book, "The A B C's of V-Belts." Write for your copy today.

THE DAYTON RUBBER MFG. CO.
DAYTON, OHIO

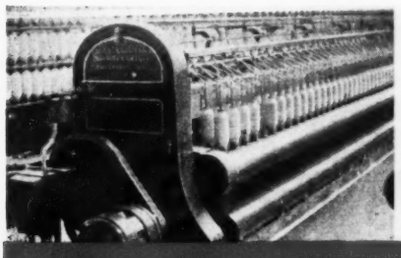
World's Largest Manufacturers of V-Belts

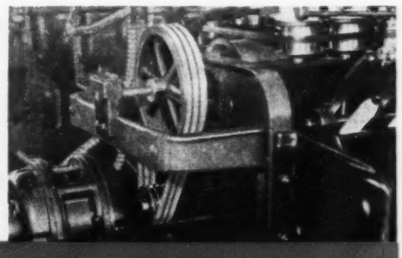
Manufacturers also of Dayton Fan Belts, Dayton Red Tube Radiator Hose, Dayton Thorobred Tires and Dayco Printers' Rollers

HERE'S WHY



Die-Cut Sides and Crosswise Rigidity Provide Greater Traction





SPECIFY

Dayton

COG-BELT DRIVES

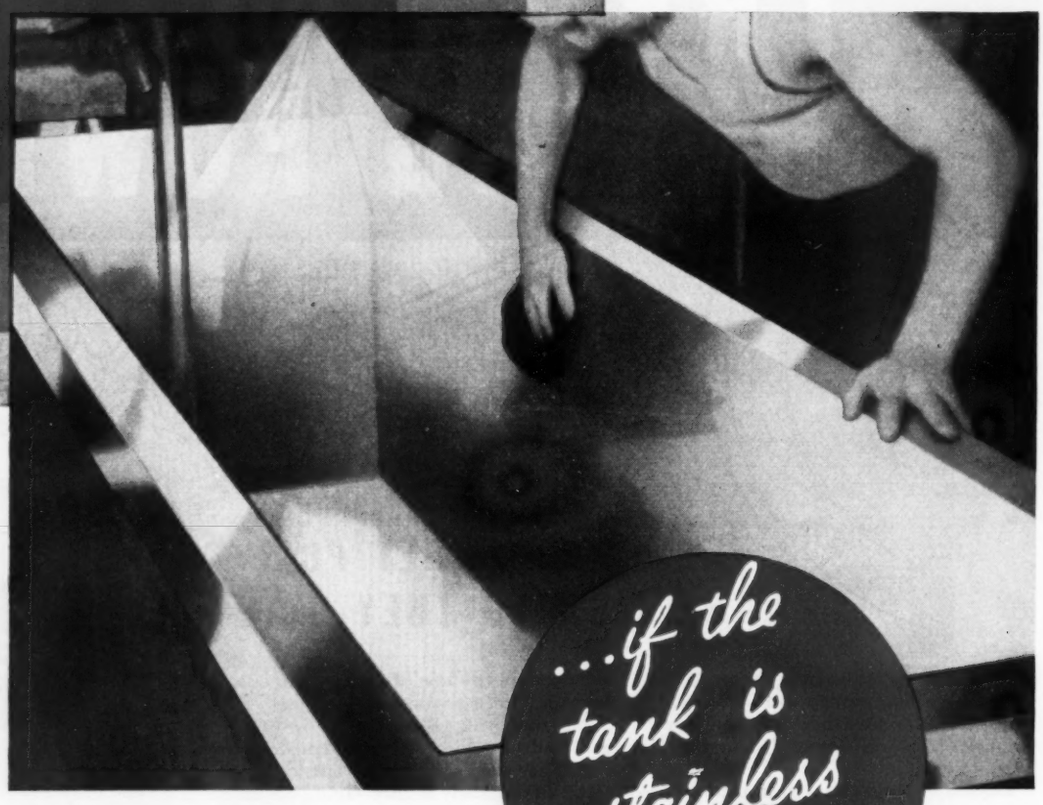
COMPACT • DURABLE • EFFICIENT

Cog-Belt Drives—F. H. P. V-Belt Drives—V-Flat Drives—Daycoil Oil-Proof V-Belts—Complete Drives, Pulleys and Belts in Stock—Fractional to 100 H. P.

THE A B C's OF V-BELTS

This is the greatest book on V-Belts ever published. It shows how Dayton Cog-Belts transmit more power, save space, last longer, and reduce costs. This important book will help you solve your drive problems. It's free. Write for a copy.

A COLOR CHANGE IS QUICK AND EASY



...if the tank is stainless Enduro

Just a thorough flush with water and a quick washing removes every trace of the dye . . . if the tank is lined with stainless ENDURO. That's because this perfected stainless steel is immune to attack or discoloration from dyestuffs, and it has a hard, smooth surface. Therefore, it washes down quickly and thoroughly . . . with no chance for carry-overs . . . no possibility of affecting the next color. ENDURO is saving money in every plant in which it is being used. Republic will be glad to supply you with the facts. » » » » » » » »

REPUBLIC STEEL

Republic Steel CORPORATION

ALLOY STEEL DIVISION, MASSILLON, OHIO

GENERAL OFFICES: CLEVELAND, OHIO

When writing in reference to this advertisement please address Dept. CO

ENDURO

REPUBLIC'S PERFECTED STAINLESS STEEL

Licensed under Chemical Foundation Patents, Nos. 1316817 and 1379378. ENDURO is sold only through Republic Sales Offices and Authorized Distributors

©C1B 293781

Robert W. Philip,
Editor

John C. Fonville
and L. Meade,
Assistants

W. J. Rooke,
Vice-President

Richard P. Smith,
Advertising Manager

W. E. Coogler,
Production Manager

Editorial and Business Offices
GRANT BUILDING
ATLANTA, GEORGIA

MEMBER OF A. B. P.
MEMBER OF A. B. C.

Published Monthly

ANNUAL SUBSCRIPTION—$1.00
CANADA—$1.50; FOREIGN—$2.00

JOHN B. SHAW, *Sales Manager*, 39 Grove St., Auburndale, Mass. Boston Exchange, West Newton, 1031.
ARTHUR C. SHAW, *Representative*, 5 Prospect Place, Tudor City, New York City.
E. A. ROBISON, *Representative*, Hotel Pennsylvania, Philadelphia, Pa.
W. S. CUSHION, *Vice-President*, 506 The Arcade, Cleveland, Ohio.
JOHN C. COOK, *Western Manager*, Room 1500, 32 West Randolph St., Chicago, Ill.
W. A. MCGEE, *Carolina Manager*, Box 562, Charlotte, N. C.

Published by

W. R. C. SMITH
PUBLISHING CO.
Atlanta and Dalton, Ga.

W. R. C. SMITH, *President*,
W. J. ROOKE, *Executive Vice-President*,
W. S. CUSHION, *Vice-President*,
T. W. MCALLISTER, *Vice-President and Editorial Director*,
O. A. SHARPLESS, *Treasurer*,
J. C. MARTIN, *Secretary*.

Publishers Also of

ELECTRICAL SOUTH
SOUTHERN HARDWARE
SOUTHERN POWER JOURNAL
SOUTHERN AUTOMOTIVE JOURNAL

COTTON

Vol. 100 MARCH, 1936 No. 3

Contents

General and Technical

A System of Keeping Records of the Distribution of Mill Supplies ---- 51
Mill Village Maintenance, by A. J. Cooper ---- 54
Institute Findings on Japanese Imports ---- 58
Kier Loading and Boiling for the Chlorine Bleach, by J. Andrew Clark (Part 1) ---- 59
Warp Sizing, by Paul Seydel (Article 4) ---- 63
The Pioneer—by William P. Jacobs (Part 7) ---- 67
Practical Pointers on Reproducing Textile Fabrics from Sample, by E. V. Wilson ---- 71
Improving Working Conditions in the Opener Room ---- 72

How Other Men Manage

An Overseer Again Discusses Human Relationships ---- 99
More About Preventing Streaks in Making Mock Yarn ---- 101
Trouble With Filling Breaking on the Change ---- 102
Old Bob—An Example for Loom Fixers ---- 102
My Experience With Spraying Oil on Cotton ---- 105
How Is the Twist Multiple Figured? ---- 107
Answers to Spinning Questions ---- 107
A Debate on Twist in Roving ---- 109
Southeastern Section of A. A. T. C. C. Meets at Columbus ---- 109
Textile Booklets Worth Writing For ---- 110-112

Knitting Section

The Laboratory as an Aid to Knitting and Finishing (Part 2) ---- 115
Loops on Inside Selvage of French Heel—How to Prevent Them 119
Ribbers—Article 5—Notes on Their Operation and Adjustment 122
More About Left- and Right-Twist Silk for Hosiery ---- 126
Banner Fabric Machine With Fabriscope ---- 127
Seventieth Birthday Anniversaries for Ferdinand Thun and Henry Janssen ---- 128
December Hosiery Statistics ---- 128
Barratt and Hayes Acquire Charles Cooper Company ---- 128
The Knit Goods Market ---- 130
Review of the Yarn Market ---- 134

Current Textile Topics

Talk of the Month ---- 73
Cotton Dominating Textiles Despite Special Problems ---- 73
New England Mill Situation ---- 74
Comment on the Cotton Market ---- 74
What the Southern Mills Are Doing ---- 76
New Textile Equipment and Publications ---- 78
Timely News Items With a Textile Slant ---- 84
Personal Notes About Men You Know ---- 92
Thomas H. Rennie Retires ---- 90
An Old-Timer Says ---- 95

(Copyright 1936, by W. R. C. Smith Pub. Co.)

Hosiery Makers Turning to Standardized Rayon Yarn....

Spun-lo

For Easier, More Economical Knitting

WHY? Spun-lo rayon for hosiery has been standardized! It is tested for tensile strength and ability to take and hold dyes. It means less waste and fewer imperfects in hosiery knitting! For over five years Industrial has been experimenting with and improving Spun-lo yarn, especially for hosiery knitting. Now it knits into expensive-looking softer hosiery . . . to sell at chain store prices. For several years women have been turning to hosiery knit from Spun-lo . . . because of the longer, surer wear it gives. Alert chain store managers everywhere have been increasing their stocks of Spun-lo hosiery . . . because they find it repeats again and again! Hosiery knitters, large and small, have been increasingly enthusiastic about the economy and knitting perfection of Spun-lo . . . standardized in strength and ability to knit into finer hosiery.

Profit by Nationally Advertised Name With This Transfer on Your Hosiery

Use Spun-lo yarn . . . and the Spun-lo transfer on your hosiery . . . men's sox, women's hosiery, children's stockings. This name is known to 24,000,000 women . . . the readers of 21 of the most important women's magazines published. To them Spun-lo represents a new standard of satisfaction in rayon! Chain store managers have felt the swing to hosiery of Spun-lo. It is on their listings.

Industrial Rayon Corporation

Cleveland, Ohio

MAR 23 1936

Vol. 100
No. 3

COTTON

March,
1936

A System of Keeping Records of the Distribution of Mill Supplies

WHERE most money is being spent is where most money is likely to be saved, or wasted. Mill supplies is the biggest item in the mill overhead budget. We attempt to give in this article, without too much detail, an explanation of one method of distributing mill supplies.

The supply clerk is charged with the responsibility of receiving, issuing, and accounting for all mill supplies. Upon receipt of an invoice for supplies purchased, the invoice is stamped with a rubber stamp as shown on Form No. 1, and passed on to the supply clerk. He marks the form to show the date received and by whom checked in to the mill supply house. He then returns the invoice to the mill office where it is paid and filed as indicated by the balance of the entries on Form No. 1.

The supplies received are stored in bins and each item is entered on a card that fits into a card index

Date Received	4/20/35
Received by	R.E.R.
Price	J.E.H.
Calculation	J.E.H.
Account	Mill Supplies
Paid	M.R.O.
Check No.	88842
Entered C. J.	✓

Form No. 1

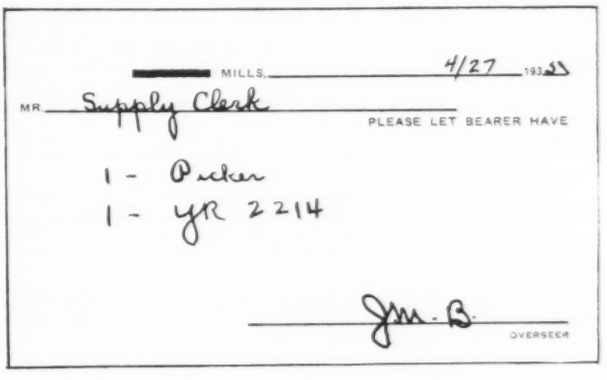
control system. The card shows in what bin the item is located. It also shows the price of the item and the quantity on hand at all times.

The biggest responsibility in the issuing of mill supplies is that of determining when a part is to be issued. Mill supplies present a job at which someone must be everlastingly plugging away at little leaks in order to prevent their growing larger and eventually wrecking the dam. With competition keener today than in many years, it is no exaggeration to say that waste of supplies can prove to be the last straw for a mill that is struggling to keep open.

The job of preventing leaks falls largely on the shoulders of the mill superintendent, and, in order to help him in the task, certain forms and rulings are kept in force.

The issuing of supplies is controlled by the supply request slip, a copy of which is shown marked Form No. 2. The responsibility for issuing is taken off the shoulders of the supply clerk by use of this slip. Once a slip is presented to him, signed by an authorized person, it becomes his duty to issue the part and to charge it to the proper section.

Throughout this article we refer to sections. While reference is generally made to loom sections because loom supplies make up a major portion of all supplies, the methods apply to a section of spin-



Form No. 2

ning, or fly frames, or any other section. The methods used are applicable to all departments.

The overseer and second hands alone are authorized to sign request slips for supplies. Supplies can not be drawn from the supply room without these slips. Before an overseer, or second hand, issues the supply request slip, it is his responsibility to see that there is a need for the supply item requested. It is also his duty to see that no abuse is being practiced. It is no secret among men who work in the mill that many a loom fixer, or section man, will break teeth out of gears, break off a stud, split a shuttle, or do similar damage to other parts, if in his opinion that article is giving him trouble. The experienced second hand should know that a part requested is worn out by fair wear and tear before he issues a request slip for new parts.

In certain cases, as with electric light bulbs for example, it is required that an old burned out part be presented before a request slip will be issued for a new part.

In many instances, as with pickers, or shuttles, a great deal can be determined from the condition

SUPPLIES CONSUMED

DAILY REPORT

4/24/35

Section No. DAY		Section No. NIGHT	
1	$ 24.18	1	$ 16.35
2	42.10	2	31.20
3	18.40	3	46.80
4	9.20	4	27.11
		5	
30			
31		31	
32		32	

Form No. 3

of the used article presented for exchange. Pickers are often damaged by being bored off-center, thus weakening one wall. They are also bored too low with a result that the shuttle point will soon be striking the metal rivet in the picker. A good means of checking on this type of waste is to have the old parts checked by the second hand, then returned to the supply room in exchange for a new part. The old parts can then be examined by the superintendent and checked back to the careless handler.

Shuttle box binders are often damaged by being knocked into position by a hammer. The old part will readily show that excessive use of binders is at times due to this practice.

A supply runner is used for conveying parts from the supply room to the loom fixers. The runner's wage is only about half that of a loom fixer and this results in saving the loom fixer's time. There is a tendency to make the supply room a meeting place of loom fixers and the use of a supply runner helps keep this at a minimum.

The supply clerk must account for all supplies purchased. He makes use of a number of forms in doing this. Certain ones of these forms are intended to aid the superintendent in checking on supplies consumed as well as to aid the bookkeeping department in charging out the supplies consumed.

Form No. 3 is made up by the supply clerk and given to the superintendent daily. It shows the value of the supplies consumed by each section, each shift. While Form No. 3 gives the superintendent a daily

LOOM FIXER MONTHLY SUPPLY ACCOUNT

SECTION NO. 21 LOOM FIXER B. E. May WEAVE DEPARTMENT NO. 2

MONTH ENDING 4/27/35

ARTICLE DESCRIPTION	ARTICLE NUMBER	QUANTITY	PRICE	VALUE	TOTAL
Loom Parts					
" "					
" "					
Battery Parts	By 2218	11	16¢	$ 1.76	
" "	By 1613	4	1.12	4.48	$ 6.24
" "					
" "					
" "					
" "					
Warp Stop Motion Parts					
" " " "					
" " " "					
" " " "					
" " " "					
Dobby Parts					
" "					
" "					
Bolts					
"					
"					
Check Straps					
Belting					
"					
Belt Hooks					
" "					
" "					
Shuttles					
"					
Lugs					
"					
Pickers					
Picker Sticks					
Temple Parts					
" "					
" "					
" "					
" "					
Leather					
Brushes					
"					
Sand Paper					
Emery Paper					
Binders					
Cement					
TOTAL					

Form No. 4—The Loom Fixer's Monthly Supply Account

(Copies of this author's previous discussion on purchasing mill supplies will be furnished upon request.)

check on the consumption of supplies, Form No. 4, the Loom Fixers Monthly Supply Account, gives him the detail of the kind of supplies, as well as the quantity and value of same. Form No. 4 is shown in abbreviated state. It is a much longer form than shown. For instance, the item "Loom parts" has space for about twenty different listings where this shortened form shows space for only three.

Certain supplies can not be issued from the supply room. In this group we find such articles as starch, roller shop supplies, paints, and burlap. While the supply clerk does not handle these articles he has an accurate check on them. They are handled by means of a running inventory. The overseer of the department concerned gives the supply clerk a list showing the supplies consumed each week. From this list the supply clerk charges the supplies used into the weekly supply report. Taking starch as an example, he keeps a check on this by subtracting the weekly issues from the amount on hand as shown in a book. Purchases are, of course, added to this book inventory. Once each month the supply clerk makes a physical inventory of the amount of starch on hand. If this does not agree with the book inventory he adjusts the last weekly report to make it agree with monthly physical inventory.

Form No. 5, the "Supplies Consumed" report, is the final summary of supplies consumed. It is made once each week. Four weekly reports are then consolidated to make the monthly report which is used in the accounting department. This form gives the mill agent a check on supplies used in each department and a means of comparing this with the budgeted amount set up for that department.

Budgeting of supplies is based on experience. The value of supplies consumed is posted from Form No. 5 once each month. From these figures annual averages are taken and worked into percentage of supplies consumed by each department. From this point it is a simple problem in arithmetic to break down the annual supply budget and inform the department heads of what they have to spend each week for supplies.

This article together with one published in a previous issue under the title "Purchasing of Mill Supplies"* outlines a complete system for purchasing and distributing mill supplies. This system could not be expected to fit the needs of every mill. Any experienced man can modify and adjust the forms and methods for use in his mill.

It may appear from the number of forms and reports used that it would take a great deal of time and clerical help to keep this system in force. This is not true, however. Every report can be made by the man who issues the supplies—no extra clerical help is needed to make out the reports.

*Page 45, March 1935 COTTON.

[redacted] MILLS

SUPPLIES CONSUMED

4 Weeks Period Ended 4/27 1935

1	Opening and Picking					
2	Cards					
3	Combing					
4	Drawing					
5	Slubbers					
6	First intermediates					
7	Second intermediates					
8	Speeders					
9	Jacks					
	General					
	Total Carding					
20	Spinning	814	20			
21	Spooling	33	18			
22	Twisting	11	60			
23	Warping	41	40			
	General	9	12			
	Total Spinning			909	50	
30	Slashing					
31	Drawing in					
32	Weaving					
	General					
	Total Weaving					
40	Cloth Room					
SERVICE DEPARTMENTS:						
60	Yard					
61	Power Plant					
62	Machine Shop					
63	Carpenter Shop					
64	Roll covering shop					
65	Electric shop					
66	Laboratory					
67	Sample room					
68	Mill office					
69	Supply store					
71	Paint shop					
	Total Service Departments					
	General					
218	Supplies Consumed					
	Job Numbers:					

Form No. 5—Monthly Record of Supplies Consumed

John P. Maguire & Company, New Textile Factoring Firm, Announce Election of Officers

John P. Maguire & Co., Inc., a new textile factoring concern, have announced the election of officers as follows: John P. Maguire, president; Frederick H. Wandelt, John H. Jephson, Howard Stieb, Snelson Chesney and William H. Bischof, vice-presidents; Louis J. Moran, secretary; William A. Murray, treasurer; Robert B. Matthews, assistant secretary; and Lester Prink, assistant treasurer.

It will be recalled that Mr. Maguire inaugurated the Textile Banking Company 16 years ago, and until recently served as president of that institution. All of the others named were associated with him as officers of that company. The new company has a paid-in capital of $3,500,000, and its facilities and resources will be devoted to the financing of the movement of the production of manufacturers of textile fabrics and allied lines. Permanent quarters of the company will be at 370 Fourth Avenue, the 26th Street and Fourth Avenue ground floor corner of the New York Life building, on the 21st floor of which temporary offices are now located.

Mill Village Maintenance

Practical ideas on maintenance, painting and preservation of village houses and other structures not directly connected with manufacturing

By A. J. Cooper
Manager, Construction Department
Robert & Co., Inc., Atlanta, Ga.

HERE is a thoroughly practical discussion of problems constantly confronting every mill with a village. The different elements of the village house are discussed with practical, useful recommendations as to methods of maintenance; painting as the major function of maintenance, receiving special attention.

Following the author's discussion of mill building maintenance in the February issue, this article rounds out a comprehensive, up-to-date authoritative treatment of the whole subject . . . . . .

DESIGNERS of mill village houses have always been hampered by the consideration of the first cost, as well as by adherence to conventional types of construction. As a result, the average mill cottage is very vulnerable to the deleterious effects of the elements, a fact which makes for much too rapid deterioration of certain parts.

The new ultra-modern technology which has revolutionized some of our habits and living conditions has not yet worked its marvels in the matter of building design, sufficiently to enable us to construct more nearly permanent structures at less cost. It will come about, of course—and in the near future—that more durable and more economical construction will be evolved for small houses. A great many experiments are already being tried.

But in the meantime there are hundreds of mill villages already constructed of rather perishable materials. And the investment in these villages must be protected from too rapid depreciation by proper methods of maintenance. If any owner can double the life of a building by spending a few additional dollars per year for maintenance, he should at least be interested in how it might be done, and how it would work out economically. And until the building is constructed which will eliminate maintenance costs, the owner must resign himself to paying out some substantial amount each year for upkeep, or seeing his investment fly away on the wings of depreciation.

The Need of Systematic Maintenance

Knowing this to be true, the wise owner will try to establish the maintenance of his properties on an orderly basis. His expenditures in this direction should be known in advance, and the work should be made to follow a definite routine. I have seen a number of examples of the expensiveness of haphazard repairs. Some owners have the habit of doing no maintenance work in their village until the houses are in a state of dilapidation, so that the repairs run into the realm of major expenditures. Sometimes this may be due to conditions beyond their control, but in some cases it is due to neglect, to pre-occupation with other more pressing affairs. Whatever the cause, it can be demonstrated that such a policy is expensive, as repairs made at ten-year intervals always have proved more expensive than those made annually.

For this reason, I believe the best policy would be, first, to catch up all the items of repairs, painting, roofing, etc., that need to be done; second, to keep all carpentry and other minor repairs up to date; and third, to schedule major items, such as re-roofing and re-painting, whose approximate useful life can be reasonably predicted, for replacement on the basis of a certain percentage each year. This last item would be varied somewhat in the matter of re-roofing, but would be carried through on a fixed schedule in regard to painting.

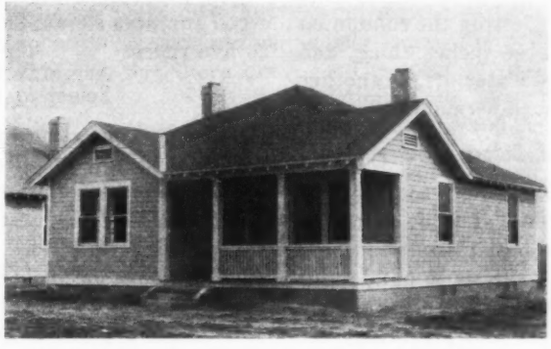
We shall discuss some of the points about village house construction, which give trouble and make up the major portion of the expense of maintenance.

Let us begin with the exterior walls of a house. There the principal item of expense is the windows. When the putty gets hard and cracks up, the sash will soon begin to rot unless the condition is corrected. The glass should be done over and re-puttied as often as necessary, to prevent this damage. At the same time, any broken lights can be replaced.

The Village House

Many times faulty design of the window frame and trim will allow rain to run in behind the trim, keeping it wet, and soon causing the frame, especially the sill, to rot. This will extend to the framing if the condition is not corrected. The actual work necessary depends, of course, on the detail. Perhaps caulking will accomplish the result, but the sills should be inspected and replaced as soon as they are sufficiently deteriorated to allow water to run down in the framing.

The siding on the exterior of the houses frequently cracks up, permitting rain to run through, where it may run down on the sill on which the studs rest. This is especially true of the thin weatherboards sometimes used for siding. When boards are so badly cracked, they should be removed and replaced with new boards. When knots break out and leave holes, they should be covered with small strips of galvanized iron, or the board replaced.



A typical village house. Maintenance and painting will preserve it economically . .

The interior walls of cottages are usually wood ceiling, plaster, or some type of wall board. Wood ceiling is the least desirable of these, from the standpoint of the tenant, but plaster and some of the cheaper types of wallboard are most often damaged. Where extensive replacements are needed, the new waterproof plywood is the most desirable material to use, as it combines the durability of solid wood boards with the smooth surface and air tightness of the wall board. The plywood board should be painted, and requires less paint and labor than wood ceiling.

The House Interior

Interior floors in cottages are not usually destroyed by the abrasive action of scuffling feet, but by scrubbing with soap and water. This scrubbing, which seems to be a necessary means to a reasonable amount of cleanliness in unpainted floors, soon results in splintering up a pine floor, a condition which is undesirable from the standpoint of both occupant and owner. The wear can be avoided by eliminating the scrubbing, and this can be made unnecessary by painting the floors. It is quite possible that painting interior floors would not be justified from a purely economical point of view, but the cleanliness which it fosters is worth whatever the cost may be over a periodical replacement of the flooring. This difference will be small.

After the wear has occurred, the only thing to do is to replace a portion of the flooring. It will be found that if a considerable portion of the floor of a room is badly worn, it is no more costly to re-floor the entire room than to patch. When this condition obtains, flooring over the top of the old floor will improve the construction, by strengthening the floor system.

Keeping the Porch in Repair

If houses could be built without porches, one of the most prolific causes of expense would be eliminated. The floor system is of course what causes the trouble. Kept damp most of the time by blowing rains, the planks and timbers offer an ideal garden spot for the growth of rot fungi, unless, of course, they are built of decay-resistive materials such as creosoted or other treated lumber. Concrete porches are better than treated wood, but are usually more expensive. The average porch floor built of untreated lumber, will be fairly well decayed in six or eight years, sometimes less. When the planking gets in such bad condition that it needs to be replaced, it will usually be found that the front sills are rotten, and frequently some of the joists also need to be replaced. When this is the case, it is much better economy to remove the entire floor, joists and all, and replace, using treated lumber for the sills and joists.

Creosoted lumber should not be used for the porch flooring, on account of its appearance. It also makes the surface sticky and gummy. For that reason, some salt treatment which can be painted is better. Of these, zinc chloride, zinc meta-arsenite, and Wolman salts are the most common.

Another good practice in connection with the flooring is to use 1⅛x2¼-inch plank, and give the edges a good coating of thick white lead in linseed oil just before laying. The white lead should not be of painting consistency, but much thicker. Of course, the surface must then be given two or three coats of a good deck enamel. If this construction is used, it is not absolutely necessary to use treated plank, as untreated plank will give many years of life. The white lead seals the joints against the entrance of moisture, and painting the surface every few years will insure a long life.

The Porch Columns

Another part of the porch construction which frequently gives trouble is the columns. These usually rot at the base, causing them to have to be patched at the bottom, which is a poor looking job, or replaced, which seems like an unnecessary expense when only the bottom six or eight inches are decayed. It will sometimes be found, in the case of "box" columns, formed of four pieces of plank, that no provision has been made for water to run out of the base. Consequently water seeps into the hollow space within the

Street scene in a Georgia mill village . . .

column, where it stands for days, or until it is entirely absorbed into the wood. A partial remedy is to cut notches, in the shape of an inverted V, in the base at the floor line, on upper and lower sides, to allow the water to flow through and out and also give a little ventilation. The only sure remedy is to build the entire column of treated lumber, and this should be done when any of them are replaced. Setting the column on a treated wood block, two or three inches thick, and beveled slightly on top to run the water off, is another help in making these columns more permanent.

The Outside Steps and Balustrades

Outside steps are often a source of considerable expense, especially if they are built of wood, with the stringers resting on earth. The best thing to do, and probably the cheapest in the long run, is to build steps of concrete. If the first cost of this is too high, they should be built of treated lumber, and preferably set on a concrete block, so that no wood actually comes into contact with the earth. If it is desired to paint the steps, a colorless wood treatment should be used, otherwise creosote will be satisfactory. All wood treatment should be done under pressure.

Balustrades on porches are frequently allowed to go to pieces, through abuse on the part of the tenant, and neglect on the part of the owner. Balustrades should be very simply but substantially designed, presenting few places for water to catch and remain. The bottom rail as the first piece to decay, should always be of treated wood, and better practice would be to treat the materials for the entire balustrade with a colorless preservative treatment.

The Village Painting Program

It is not my purpose to waste much time and space in arguing the advantages of more frequent painting than the average village houses get. It is a point that so few people would question that any mere urging to paint often is superfluous. But painting, in a properly designed and maintained village, is the largest single item of upkeep cost, and when any item is so necessary to the welfare of the structures, and so generally expensive, as painting, it deserves some study and attention. We will discuss some of the principal factors which should be considered.

First in the rank of questions to be answered is, how often should houses be painted. Of course, there are involved many considerations of design of the house, quality of paint, conditions of application, etc., which affect this materially. The paint on two adjoining houses, applied at the same time, will not always last the same length of time. The thickness of the plank, the exposure, the moisture in the wood, and other factors react to vary the useful life of the paint film. The individual surface should be examined, and if the old paint has begun to crack, peel or craze, it may be safely assumed that its usefulness as a protective agent is about spent. When it reaches this stage, it is best to paint as soon as finances, weather and convenience will permit, as deferring the job not only may result in deterioration of the plank, but makes the repainting more costly, on account of the necessity for scraping or otherwise removing the loose paint before the new is applied.

In general, experience indicates that all exterior wood surfaces should be repainted at intervals of three to five years.

Selecting the Proper Paint

The next question to be answered in regard to repainting is, how to select the proper paint. The only answer is to pick the product of a reputable manufacturer who has a reputation to maintain. Beyond this, there is little to choose. The paints for outside wood surfaces have become pretty well standardized as to ingredients. Formula, however, is not the whole story of whether a paint is good or bad, as it is sometimes found that two paints of the same formula do not have the same quality. The difference lies in the quality of the materials used, the fineness of the grinding, and other details of manufacture. For that reason, the cheapest paint is not always the best one to buy.

Another point in the selection of paint for houses is color. In recent years it has become quite popular to paint every house in a mill village solid white. With this idea, as a matter of taste, I am heartily in sympathy, as a newly painted white house presents a pleasing appearance, and a whole village of them is equally attractive. But aesthetics is not the only consideration in the selection of color, as it has been found that white paints do not hold up quite as well as the light, tinted shades. And when the surfaces are approaching the repainting stage, the tinted colors will probably look better than the white. For that reason, if the utmost economy is desired, a well selected range of pastel shades will give better results than all-white.

Preparing the Surface for Painting

A third question in regard to painting is the proper preparation of the surfaces. It is a waste of money to paint over cracked or peeling paint, or before the carpentry repairs are made, for the new paint will deteriorate very much more rapidly than if the surfaces are put in the proper condition. All loose paint must be scraped or brushed off, all cracked or broken weatherboards should be repaired, and window frames

should be caulked. Only when all these precautions are taken, and the paint properly used and applied, in warm weather, and on thoroughly dried surfaces, will the full value of the money expended for painting be realized.

The considerations involved in increasing the life of roofs on cottages are mainly concerned with design, rather than maintenance. While considerable thought should be given to the type of roofing material most suitable, once the material is applied, there is little to be done to keep it up. Of course, there are a few items, such as replacement of shingles that have become broken, damaged, or blown entirely off by the wind. Watching for these items and correcting them should be a part of the periodical maintenance routine of every plant. But, basically, about all that can be done with cottage roofs, since the use of wood shingles is on the wane, is to apply the shingles, wait until they wear out, and re-roof. Staining with creosote stains will add to the life of wood shingles, but there are very few of these used nowadays.

Pleasant surroundings aid in building community pride and morale . . .

Taking Care of the Roof

Even new roofs sometimes develop leaks, which, if they remain uncorrected, will spoil plastering, ceiling, and interior painting, and make possible decay of framing and roof decking. For that reason, it is important to fix leaks as soon as possible. Most roofs can be patched if only one or two leaks have developed. When leaks begin to show up all over the house, the time for patching is probably past, and a new roof is in order.

A prolific source of leaks in roofs is the flashing around the chimneys. Too often this flashing consists of nothing more than some roofing cement daubed against the brickwork. A much better detail consists of sheet metal wedged and caulked into the brickwork and turned out on the roof. This must be kept tight and well caulked. A great deal of attention is not necessary for looking after this item, but a canvass of the houses for leaks should be made at regular intervals, in addition to the fixing up of individual leaks reported by the occupants of the houses.

Again—the Termite!

A source of damage to wood structures of all kinds, which has become more and more prevalent of recent years, is the termite. These insects attack almost any kind of wood, but the cheap grades of yellow pine featured by wide soft grain, such as are generally used in small houses, are especially vulnerable to their attack. Especially is this true when the insects are assisted in reaching the wood by the enclosing of the under portion of the house with a brick or wood lattice curtain wall. Out of nearly a thousand houses the writer inspected during the past year, about 75 per cent of those having curtain walls were infested with termites.

The methods of exterminating or preventing further damage from termites have been widely publicized, in bulletins of the Government, and various other authorities. Many companies are organized and equipped to carry out the work of eliminating the pest. The main thing, however, is to catch the insect and stop him before the damage has progressed too far. Replacement of sills under the walls of a house is an expensive little job, and the avoidance of it is easily worth the price of an occasional investigation.

The point of attack which must be watched is that portion of the house which is most easily reached from the ground. Wood steps and latticework which touches the earth afford a direct entry. Where these are not present, the brick curtain falls and piers offer a right-of-way along which the termite builds his enclosed runway to the sills and other woodwork above. All of these points should be inspected. It should be noted that the runways up the brick walls are always on the dark side, under the house, and are frequently in cracks and crevices in the brickwork where they are hard to find. Drilling a few holes in the sills will disclose whether or not the damage has become serious enough to affect the strength of the timber.

Inspecting the Brickwork and Wiring

In inspecting houses for repairs, notice should be paid to the brickwork in the piers. Sometimes these have fallen over, or have been partially destroyed by someone "borrowing" brick. They should be straightened up and given a firm bearing in soil, deep enough not to get washed out.

The chimneys are a source of fire hazard, as well as damage to the roofing. Many times stove pipes are stuck into chimneys without the use of terra cotta thimbles, which is bad practice and should be corrected. Above the roof line, the chimneys frequently disintegrate, allowing brick to fall on the roof, and sometimes setting the roof construction on fire due to the mortar coming out of the joints. These should be carefully inspected, pointed up, and if possible, a concrete coping put on top of the chimney to prevent further disintegration.

The electric wiring in village houses and the distribution lines leading to them are among the most consistently neglected items of mill property. Most of the wiring in the houses is open, with drop cords and key sockets. These sockets frequently get out of order, and the insulation on the drop cords gets brittle and is likely to short circuit. Incidentally, very

few of the electrical systems in houses are properly grounded, and are thus a source of physical danger and fire hazard. As a matter of safety, the wiring should be checked up, and it should be seen that it is properly fused, with the cut-in switch in a metal box, properly grounded.

The outside distribution is frequently a miscellaneous assortment of untreated poles, half decayed, with wires loosely strung. As replacement of poles becomes necessary, they should be replaced with pressure treated creosoted poles, of sufficient length and size to take care of their load.

Poles supporting transformers should be at least 30 feet long, and A.S.A. Class 4. Class 3 would be much better. Cross-arms should be creosoted and have at least four pins. Hardware should be galvanized, of not less than medium weight. Periodical inspection of the electrical system would take in the service grounds, secondary grounds, all poles, insulators, cut-outs, arresters, and transformers. The whole system must be made safe for occupant and public.

There is another side to the problem of mill villages, their design and maintenance, apart from the more obvious economic considerations. I refer to the aesthetic side, the matter of the appearance of the houses and their surroundings in relation to the mental attitude of the mill employee. That the importance of this subject is realized by many wide-awake executives, is evidenced by the number of community recreation centers, athletic facilities, swimming pools, and similar improvements, and by the planting of shrubbery and lawns in many villages. There is a human value in these improvements, one which more than repays for the expenditures necessary to bring them about. Will anyone doubt the beneficial effects of living in well repaired and painted dwellings, as opposed to dirty, leaky houses, with broken window panes, splintered floors, sagging ceilings, and dilapidated porches? While the questions of psychology are not strictly within the scope of this article or the abilities of this writer, there is no doubt that we are profoundly affected by our environment. And the house we live in is the largest and most intimate part of that environment.

Even this is not without its economic side. For example, I have seen cases where large areas of wood ceiling had been removed, presumably by the occupants. Brick is frequently removed for curtain walls, and other cases of damage by willful removal of maerials occur. Now, this vandalism is much less likely to occur when houses are inspected and repaired at reasonable intervals, because the responsibility for it could more easily be fixed on the occupant. And there is some deterring effect in clean well painted surfaces, tending to prevent destroying or marring the property.

Institute Findings on Japanese Imports

Imports "for consumption" of cotton piece goods from Japan during 1935 increased 400 per cent over the total of such imports in 1934 or from 7,286,517 square yards in 1934 to 36,472,234 square yards in 1935, according to a Cotton-Textile Institute analysis of reports issued by the Department of Commerce.

"The analysis", said Dr. Claudius T. Murchison, president of the Institute, "emphasizes the importance of the re-enactment, as proposed by Senator James F. Byrnes, in substitute farm relief legislation, of section 22 of the former AAA. This section, re-enacted, would permit the president to protect domestic producers by the application of quotas to limit imports of agricultural commodities or manufactures from foreign low-cost countries.

"The significance of the 1935 record lies in the fact that while the total of imported Japanese cotton goods is only fractional in relation to the total domestic production, the impact falls almost wholly on a single division of the industry. Of the 36,472,234 square yards of all types of cotton piece goods imported from Japan, 30,039,189 square yards were bleached cloths and represented slightly more than 20 per cent of the average annual United States production of that type of goods.

"Such a concentration in a particular field emphasizes the urgent need of the cotton industry for protection. True, the State Department in December was advised by the Japanese Ambassador that Japanese cotton manufacturers had agreed to restrict voluntarily their shipments to the United States.

"But, as was pointed out at the time, that declaration of policy is unsatisfactory in at least two respects—it is not specific either as to duration or as to types of goods on which the Japanese will impose their own restrictions.

"The tremendous disparity between labor costs here and in Japan render existing tariff rates ineffective as protection for the American industry in its domestic market. An increase in the tariff rates sufficient to give adequate protection against Japanese cotton goods would be prohibitive against other countries.

"The problem might be solved by negotiation of a trade treaty with Japan, but there is no reason for Japan to enter into such an arrangement when they can undersell American cottons here and in export trade.

'We have no retaliatory weapon and our only effective defense appears to be in a quota system which will give adequate protection to individual types of American cotton goods.

"The Commerce Department reports also show that during 1935 the entries of Japanese cotton piece goods to bonded customs warehouses, supposedly for re-export, exceeded withdrawals from warehouses by approximately 12,000,000 square yards, making the total general imports of Japanese cotton piece goods for the year a little under 49,000,000 square yards. Last May, during the Tariff Commission investigation of imports from Japan, it was established that there were then about 12,000,000 square yards of Japanese cotton piece goods in the United States bonded warehouses. It would appear that it is the policy of the Japanese to maintain an inventory in bonded warehouses of about 12,000,000 square yards, which in the year just ended was the equivalent of about four months of average imports. Theoretically imported for re-export, these bonded warehouse stocks are, in actual practice, utilized as a source for 'spot' deliveries, thus relieving Japanese manufacturers of the handicap of being several weeks distant from the market and substantially increasing the competitive advantage they already enjoy in low wage costs."

Kier Loading and Boiling for the CHLORINE BLEACH

By J. Andrew Clark

Chief Chemist, Dutchess Bleachery, Inc.

WE BELIEVE this article covers its subject, from a practical and technical standpoint, in such a comprehensive manner that it represents truly a contribution to valuable literature on the subject. A companion article, covering the hydrogen peroxide bleach, appeared on page 45 of the November 1935 issue.

Here the subject is discussed in an open, helpful manner that will make it especially valuable to anyone interested in bleaching.

ANY DISCUSSION of bleaching or boiling would seem incomplete which failed to mention that a good bottom is essential to satisfactory chlorine bleaching and has long been axiomatic with bleachers and finishers of cotton piece goods. Thorough and complete removal of the natural and added impurities is essential in obtaining this condition for which kier boiling is and has long been employed. From time to time, nevertheless, other procedures have been proposed to eliminate this operation, but after a brief trial, these have been discarded, except in the bleaching of a limited number of special fabrics.

Kier boiling in general simply consists of scouring or digesting the fabric with a circulating alkaline liquid at elevated temperatures and pressures. The construction and design of the various types of kiers is so well known in the trade and so ably described in the literature that an extended discussion of these with their various circulating and heating systems will be omitted. Any type, however, that will perform with a uniform and positive circulation can yield satisfactory boils with proper supervision. Inasmuch as the vertical type of kier is by far the most numerous and popular, this article will be limited to considerations affecting boiling with this, although fundamentally, these can be applied equally well to other types if due allowance is made for structural differences in design.

Description of Vertical Kier

The vertical kier, in general, is a cylindrical shell with rounded ends, the height of which is greater than the diameter. The size and ratio of the dimensions vary considerably but are generally rated according to their capacity of cloth load. Three-, four- and five-ton kiers are common sizes. A wooden, or preferably, iron grate is placed at the bottom of the cylindrical section on which the cloth can be piled and below which the space in the curved section acts as a well to permit accumulation of the liquor for recirculation after draining through the cloth. One or two openings or manholes are built into the top for loading and unloading the kier; while in operation, these manholes are closed by massive cast-iron covers. Whatever the method of circulation that may be employed, a spray head is provided in order that with circulation, a uniform distribution of flooding of kier liquor over the surface of the cloth can be maintained during the boil. Riveted as well as welded construction may both be used, the former type being the older and most common. Supervision of kiers is often maintained by state and insurance boiler inspection departments, each of which designates the maximum safe operating pressures, generally around 50 pounds shell pressure, but of course, this far exceeds operating pressures.

Purposes of Kier Boiling

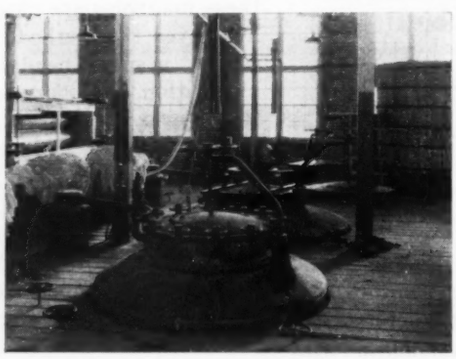
Since the purpose of the kier boil is to prepare a pure cellulose by removal of the various impurities existing in the gray fabric, it may be of interest to consider these and the effect of the boil on their removal. While the literature is very profuse in analytical data concerning the nature of these, for this discussion, the gray fabric can be considered to contain, on a dry basis, approximately 87-90 per cent cellulose, 5 per cent natural impurities and 5-8 per cent warp sizing. These values are only averages and can be expected to vary slightly for any given cloth. The natural impurities are made up of wax, fat, pectins, protein, coloring and mineral matter in various, though relatively constant, ratios. In addition to these, motes or particles of cotton-seed hulls introduce tannins, oil, and coloring matter. Following the kier boil, a total removal of the various impurities amounting to 10 to 13 per cent on the weight of the gray cloth can thus be expected. The amount actually removed in the boil would naturally be influenced by the impurities already removed in the preliminary or pre-treatment. Typical of this is the de-sizing with enzymes to solubilize the starch, the greater part of which is removed in washing to the kier; a sour steep, on the other hand, removes much of the mineral matter as calcium and magnesium salts while also softening and causing a partial hydrolysis or conversion of starch. The effectiveness of this scouring can be determined by analysis of the cloth before and after boiling.

Various pre-treatments are often given to partially remove some of these impurities as well as to thor-

oughly saturate and soften the cloth, thereby assisting in securing a more thorough and complete removal in kier boiling. Such operations are usually conducted simultaneously with singeing by passing the fabric through a quench box containing the solution with which the cloth is to be treated. Following this, the cloth is piled in bins for a definite period, during which the reaction takes place. Starch digesting enzymes, dilute acid, dilute caustic, or hot water may be used, any of which are effective.

Kier Capacities

While the capacities of kiers are rated in tons, the actual capacity will be influenced by the type of cloth to be boiled, the method of piling, the amount of kier liquor as well as the chemicals used in boiling. A light fabric gives a more dense piling than a heavier one. Hand piling, likewise, gives a more compact load than is obtained with mechanical pilers. Large amounts of liquids tend to float the goods excessively, and when chains are not used, trouble may be encountered from tangles on the top of the kier. Again, kiers loaded to capacity may yield excellent boils with one formula which, if changed, may now only give satisfactory circulation with considerably less cloth in the kier.



The kiers are the heart of the bleaching process . . . . . .
Photos, Courtesy Textile Finishing Mchy. Co.

Experience in running the various fabrics handled by a plant soon dictates the proper loads. In general, one ton of wet cloth with approximately 125 per cent water when in the rope form, requires 140 cubic feet. A five-ton kier 9 feet 6 inches in diameter by 10 feet high should be capable on this basis of treating 5.2 tons of cloth. For example, five tons of 64x64 or 64x68 sheeting will load a kier of this size to capacity, with an occasional failure to obtain a uniform circulation. Pockets showing stains and evidences of incomplete boiling and failure to digest motes result in this case. Cutting the load to 9,500 or 9,700 pounds will generally eliminate this condition by allowing an uninterrupted and uniform circulation to proceed.

Occasionally, it becomes necessary to boil much less than a full kier. Little difficulty is caused by this until the amount is around one-half capacity or less when the load may occasionally turn over on its side unless extreme care is used in all stages of the boil. When this occurs, considerable hand labor and lost time results.

Closely associated with the consideration of loading is that of piling. Formerly hand piling was universally employed for loading kiers, the most common method being that of reeling the cloth in through the manhole, with an operator then guiding the rope into place with a short stick to form a uniform mass and as the kier filled up, the operator was required to continually tread the cloth. It was especially important that he tread the cloth uniformly since otherwise, if he stood too long in one place, a more compact section would be produced, with consequent danger of an uneven boil. Another satisfactory hand method employs an operator with a long handled wooden paddle or spade, who, standing at the manhole, catches a spade full of the cloth and then tosses it in place. This method requires a fairly fast running cloth of light or medium weight, to pile up sufficiently well on the paddle.

Mechanical Piling of the Goods

Mechanical piling has, in great measure, replaced the hand operation in many plants. In this method, the cloth is fed by a reel to an elevated vertical funnel above the manhole. Water or kier liquid is introduced to saturate and carry the cloth down to a cam-operated spout projecting below the manhole, which, in operation, has a radially reciprocating motion while simultaneously rotating around the kier. Since the piler revolves in one direction, a twist is put in the cloth for every turn of the spout in a manner similar to that of ring spinning, and unless care is taken in pulling, bowed cloth may occasionally result. A more dense piling is usually obtained by hand than by the mechanical method and while the latter may not be capable of loading a kier to the same capacity, it does usually give a more uniform and rapid circulation at less cost for loading.

The liquor introduced with the cloth in the piling machine may be water or kier liquor. In the first instance, this is allowed to drain out of the bottom of the kier to the sewer as the piling proceeds. If, on the other hand, kier liquor is used, this is drawn out of the well by the pump as it drains from the cloth to be recirculated down the funnel. This method offers the advantage of thorough saturation of the fabric with kier liquor, while at the same time, if hot liquor is used, some saving in time of boiling may be effected.

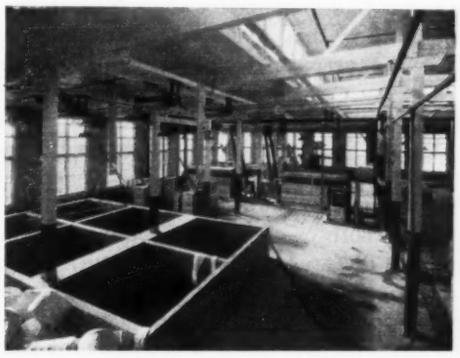
Making Up the Kier Charges

Kier charges are made up differently in many plants. The older method simply consisted of adding the various assistants on top of the goods in the loaded kier, before clamping on the cover, and depending on the circulation for mixing. A much better system is one by which the charge can be mixed in a tank, heated and then run by gravity or pumped to the kier. This insures that the assistants used in the boil start to function uniformly with circulation through the goods, in contrast to the haphazard action of the former method.

The kier charge itself is usually added to the kier from the bottom. This serves the dual purpose of helping to expel air as well as floating the goods and assisting circulation. Addition of the liquor from the top, on the other hand, is not good practice, for the down-flowing liquor may trap air to form pockets, which not only prevent boiling in these areas, but may lead to tendered spots as well. Expelling air will be retarded, while more time will be required to intro-

duce the liquor since this must filter down through the mass of cloth.

The literature of kier boiling frequently mentions the necessity for lining kiers with cloth to prevent chafing during the boil. It seems to be a fact that this condition does actually occur, probably to a greater extent in some bleacheries than in others, especially with puffer type kiers, for at a conference of bleachers one or two members reported sufficient damage, to goods intended for vat and sulphur dyeing, to necessitate lining. Other members reported no alarming damage from this cause. Goods intended for whites, on the other hand, rarely show this defect to a noticeable extent. The conditions of the individual kier, methods of loading and boiling, influence this to a considerable degree. When it is considered that during the initial period of the boil the goods rise or swell up in the kier, to be followed later by a partial collapse, and all through the boil may move slightly, the condition of the inside of the kier cannot be neglected, if chafing is to be avoided. Rough walls, sharp-edged rivets and broken coating must be protected against. To be sure, a cloth lining is undoubtedly good insurance against chafing and may be indispensable in some plants, but when the cost of installation and its replacement is balanced against the low cost and slight inconvenience of an occasional damage from this cause, opinion is often divided on this subject.



View in a small chlorine bleachery . . .

When avoidable, cloth of widely different weights should not be boiled together in the same kier, since conditions for satisfactorily boiling the heavier goods would endanger over-boiling of the lighter fabric. If, however, the boil is suitable for the light goods, the treatment may be insufficient for the other. Unboiled areas, undigested motes and a generally poor bottom would result. In making up kier sheets, then, good practice dictates that kier loads should be made up from lots of cloth as similar as possible. But when goods of different weights and construction must be boiled in the same kier, it is thought that better boils result when the lighter goods are piled on the bottom. These give a more compact column than the heavier cloth and when each is loaded in this manner, better circulation results with boiling.

Composition of Kier Charges

Kier charges are almost as numerous as there are bleacheries, with each bleacher professing to have about the best formula; and if an occasional uneven boil occurs, well, there is always the water or other local condition that can be blamed. Boiling has, in general, developed toward a single treatment with a solution based on caustic soda of various concentrations often modified by additions of one of the various alkalies, soap or bleaching oils, and possibly solvents. Double boils are often used as a preparation for cloth intended for vat dyeing, and while some plants find this necessary to obtain satisfactory absorbency, and level dyeing properties, others can obtain essentially the same result with one boil. Unless the single boil is thorough and uniform in action, resist spots and cloudy areas result in dyeing, especially in the case of vats. These remarks apply primarily to the caustic boil, for the double lime-ash boil is almost extinct.

The composition of the kier charges is based on the weight and construction of the cloth to be boiled. The lighter cloths, as could be expected, are treated satisfactorily with weaker solutions, while more concentrated solutions are needed for the heavier constructions. Kier charges of 2-3 degrees Tw. are sufficient for the lighter weights such as organdies, lawns, light weight print cloths, tobacco cloth, etc. Broadcloth, osnaburg, poplin, 2.00-yard duck, wide sheeting of the ordinary "64 square," 64x68 or 68x72, narrow sheeting of 2.85-yard and similar cloths require a stronger liquor testing 4-5 degrees Tw. Coutils and other heavy, tightly woven goods are often boiled with liquor of 6-7 degrees Tw.

These values are based on the strength of the liquor run into the kier, which in the case of water piled kiers, will be diluted by the water contained in the cloth. When piled with kier liquor, the strength can be reduced somewhat. An example of this dilution can be taken from the operation of a five-ton kier loaded with 9,500 pounds of cloth. Assuming that the cloth contains 150 per cent water from piling, this would be equivalent to 1,710 gallons. Using 3,500 gallons at 4 degrees for a charge would then actually result in boiling with liquor of 35/52nds of 4, or 2.7 degrees Tw. If, however, the cloth retained 125 per cent of water, the resulting liquor would be 2.9 degrees Tw. Some plants, however, make a practice of basing the caustic strength of their kier liquor as a percentage by weight of the cloth. One bleachery, for example, uses 4 per cent caustic soda on the weight of goods, in addition to kier assistants, when treating coutils and other heavy constructions in four ton kiers.

While, as a rule, all goods should be thoroughly boiled, whether intended for whites or colors, more latitude may be allowed in the former case. Small amounts of starch after bleaching, as well as a slight under-boiling, may not cause any trouble in bleaching and tinting to a satisfactory white, provided the treatment is uniform and does not show yellow laps when the goods are finished. As a result, cloth intended for white is often treated with a lighter boil than when processed for dyeing. Cloth intended for dyeing, on the other hand, requires a preparation that will produce a thoroughly and uniformly absorbent condition. Failure to observe this results in blotchy and streaky cloth, and in some cases, sufficient material may remain in the goods to form resists. This is especially noticeable in vat dyes, both jig and pad, as well as with continuous machine dyeing. Commercial and

Mr. Clark

J. ANDREW CLARK

the author of this discussion on chlorine bleaching, is well known to our readers, first, as the author of the series on materials used in cotton piece goods finishing, completed in these columns last year, and reprinted, and, second, as a contributor of other special articles on various phases of finishing. He has been in his present position as chief chemist at the Dutchess Bleachery since 1929; previously he was instructor of textile chemistry and dyeing at the R. I. School of Design, and also engaged in professional chemical engineering.—The Editor.

◆ ◆

diazo colors do not show the results of this to quite the same extent, especially in the more open and softer constructions, except with pad dyeing. The cost of dyeing vats, especially in the heavier shades, is so expensive that it would seem poor policy to economize too sharply in the boiling operation. For this reason, double boiling is often used for the preparation of goods for vat dyeing.

Time of Boiling and Pressure

Important variables in kier boiling are the elements of time and pressure. These factors apparently follow no set rule, for it is common to find both of these as variables in one plant, yet entirely different in another, although in the latter, pressure and length of boil will be the same for all goods. It seems to be a general practice for many bleachers to determine a pressure and time of boil that can be used satisfactorily for all fabrics likely to be processed and to then use these values as constants, with the composition of the kier liquor as the variable. Pressures are likely to vary from 10 to 20 pounds, with boils of from 6 to 12 hours and in some cases, longer. Pressure, however, is not in itself a factor, but is merly an indirect measure of the temperature. The use of high temperatures increases the activity of the caustic solution, facilitates quicker breakdown of the motes, and should permit of satisfactory boiling in shorter time. At atmospheric conditions, the kier liquor would boil at approximately 212 degrees F. but at 10 pounds pressure, tests show liquor temperatures of approximately 242 degrees F. Conversion tables likewise show that at 20 pounds a temperature of about 258 degrees is obtained. In the absence of air, these temperatures are not excessive and no damage to the cloth results from their use, although there is a slight change in the cellulose after any kier boil, which is thought to result from minute amounts of air—which naturally exist within the cellulose fiber—reacting with the cellulose during this operation.

In operation, the kier is allowed or requires about 1½ to 2 hours to come to a boil at atmospheric pressure. During this time, the liquor is circulated and the air vent or safety valve left open for the escape of air. The kier boiler, in the meantime, has observed the behavior of the pumped liquor as well as having inspected the side of the kier for cool areas that would indicate trapped air or uneven circulation. When the air has been expelled, the valve is closed and the boiling proceeds, for a definite time, after the proper pressure is reached. The complete venting of air is extremely important since cotton reacts readily to form oxy-cellulose with the oxygen from the air in the presence of alkalis at elevated temperatures such as are employed here. Closing the air vent too soon is indeed a source of occasional tender tops and may severely damage considerable cloth on the top of the kier load by oxy-cellulose formation. It is generally considered poor practice to interrupt the boiling once a boil is started, yet in one mill where the steam is cut off at 5:00 P. M. daily for real or imaginary savings in fuel, interrupted boiling is the rule. In this case, all goods receive an eight-hour boil, actual boiling time, part of which occurs during each of two days. The bleacher has his troubles, yet is able to obtain good results.

"Blowing Off" the Kier

Following the boil, a kier is "blown off" as follows:

The steam is turned off, and the liquor circulated until the pressure falls, the time required varying with the size of kier and pressure employed. The air vent and the sewer drain valve are then opened, while wash water is introduced at the top of the kier. This now permits the spent kier-liquor to flow out of the kier by gravity while introducing wash water at the top, thus protecting the cloth against the action of the air and cooling it somewhat if cold wash water is used. Washing with warm water would seem to be the better of the two, however, since danger of chilling the spent liquor with formation of stains is eliminated. Introduction of warm wash water from the bottom to overflow at the top has often been proposed and used to some extent. This method offers the advantage that any deposit accumulated on the top of the cloth during the boil can be flushed away more readily than by the older method. Occasionally, cloth cannot be put into process immediately after the boil and is left over the week-end, for instance, in the kier. With properly coated walls to protect against iron stains, this is satisfactory, though not especially good practice, provided the cloth is thoroughly washed down. On the other hand, the cloth should not be permitted to cool down in nor to stand in cold spent liquor, for in this case, it will absorb considerable of the boiled-off material from the liquor while deposits of this may also form in the cloth to give dark stains which are most difficult to remove. The oxidizing action of air on cellulose, saturated with hot caustic, is so well known that bleachers continually guard against this in blowing off kiers. Failure to cover the goods with wash water while draining off may result in severe tendering, as the air follows the descending hot kier liquor. Premature introduction of cold wash water, however, before the pressure has completely dropped, is thought to promote the formation of tangles on the top of the load. The sudden creation of a partial vacuum momentarily releases steam from beneath the top layers of the cloth to form the resultant tangle.

(The second and concluding installment of this article by Mr. Clark will appear in an early issue. It will continue this discussion, and cover the various chemicals, oils, etc., used in chlorine bleaching, their use and applications.—The Editor.)

WARP SIZING, by Paul Seydel (Article 4)

This installment discusses the fats, lubricants and softeners as used in sizing, and continues Mr. Seydel's discussion of this important process

THIS continues the series by Mr. Seydel, and covers the fats, lubricants and softeners as used in sizing. The first article, page 43, November issue, gave a non-technical analysis of the composition of raw cotton; the second, page 44, December issue, covered flours and starches; and the third, page 55, January issue, discussed gums and glues. Reprints of previous articles are available upon request.

Fats, Lubricants, Softeners

THE general term *Fats*, as applied to substances used in the manufacture of sizing compounds, includes ingredients of an oily or greasy nature that either lubricate or soften. *Lubricants* are substances used to minimize friction between surfaces moving in contact with one another, while *Softeners* are substances used for the purpose of giving a soft handle to the warp and size film. In practice, lubricants are also softeners, while most softeners, classed as fats, have some degree of efficiency as lubricants.

Lubricants are designed to minimize friction between surfaces. Friction varies as the area of contact surfaces, as the speed with which the surfaces move one against the other, and as the viscosity and nature of the lubricant. The subject of lubrication is a very broad one and to be successful in picking the right lubricant for the job in mind, one must have considerable experience and much scientific knowledge at his finger-tips. Just as spindle oil should not be used in engine cylinders, so a fat with poor viscosity should not be used for lubricating sized warps.

Oiliness is an essential quality of a lubricant. It relates to its unctuosity and lubricating value and refers to the property of forming a continuous film on the surface lubricated.

To be valuable as lubricants, oils must have a flash point of at least 350 degrees F. The flash point of an oil is the temperature at which it gives sufficient vapor to form an explosive mixture. The oil is heated very gradually in an open pan, a small intermittent flame is held over the surface of the oil and the temperature at which the vapors produce a flash is called the flash point. Setting point is a term applied to the temperature at which a lubricant ceases to flow. The melting point is the temperature at which the fat begins to flow. As a lubricant becomes liquified, it loses some of its power to reduce friction.

The viscosity of a fat is very important in sizing. If a lubricant lacks this property, it has a tendency to penetrate too deeply and to loosen the fibers with coincident shedding and production of warps lacking in uniform quality.

Fats are designated as saponifiable and unsaponifiable. The saponifiable fats are capable of being converted into soaps. A soap is a definite chemical compound, produced by the interaction of a fat with a base, the base usually being caustic soda or potash in solution. These soaps are soluble in water. However, there is a class of soaps produced by the combination of fat with other metals, such as aluminum, iron, manganese, calcium, etc. These soaps are insoluble in water. An unsaponifiable oil does not react with the bases mentioned. This difference is considered by the chemist in his determination of the proportions in a mixture of fats of the unsaponifiable and saponifiable type.

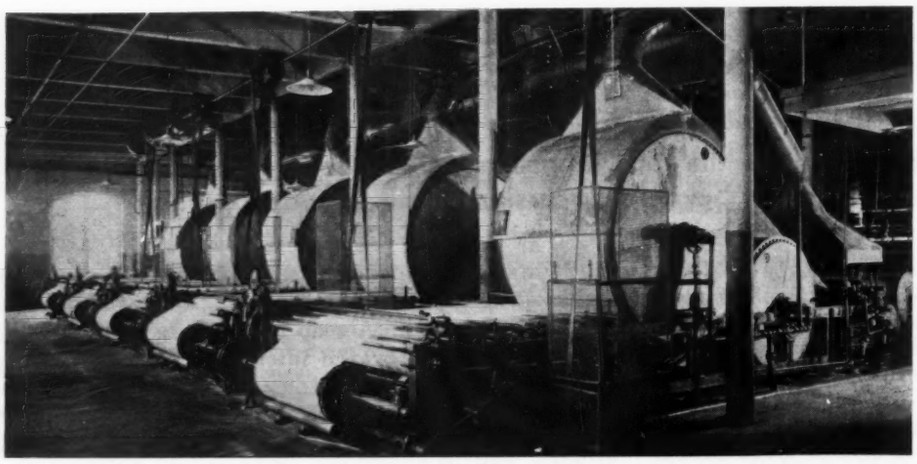
The Oils Used in Warp Sizing

The oils mostly used for the preparation of lubricants and softeners are: Tallow oil (which is obtained as a by-product of the manufacture of stearin by pressing tallow; it is mainly olein); neatsfoot oil (which is an oil obtained from the feet of cattle); olive oil, palm oil, cottonseed oil, castor oil and rapeseed oil (all obtained by extraction from the various fruits of the respective plants and trees). These oils are known as the fixed oils.

One of the characteristics of fixed oils is that they are mainly glycerides. A glyceride is a definite chemical compound of glycerin and a fatty acid. A glyceride may be broken down in different ways: for instance, by the addition of a mineral acid, setting free the glycerin and fatty acids. Glycerin is also set free when the fat is saponified or formed into a soap. All fixed oils are saponifiable.

When two substances enter into chemical combination, one with the other, very often the resulting product has no characteristics in common with either of the original substances. Tallow, which is a mixture of the glycerides of stearic acid and oleic acid, is entirely different from the glycerin which is liberated when the saponification of tallow takes place. Glycerin is a liquid miscible in all proportions with water, and has the property of attracting high percentages of moisture, while tallow is a fat, which does not mix with water and does not have the property of attracting moisture. It is impossible to get glycerin from tallow without chemical decomposition. Nor has the glycerin in combination in tallow any hygroscopic quality; i.e., it will not attract moisture.

The combination of sodium and chlorine gives a similar illustration. Sodium is an extremely caustic, easily oxidizable metal. Chlorine is a yellow gas, strongly odorous and poisonous. The combination of the two makes common kitchen salt, which is not caustic, is white, has no odor, and is used as a food product.



Other oils used, besides the fixed oils, are: Sperm oil, a liquid wax, which due to its great oiliness and its small change in viscosity with temperature, is a fine lubricant; and mineral oils, which are so varied in number and quality that they will be treated under a separate sub-head.

One of the fats most commonly used for lubricants and softeners is tallow. Greases are either natural products, such as tallow, or may be a mixture of natural products, mineral oils, fixed oils or metallic soaps, one or more being added. The term grease is restricted generally to low class material dark in color and containing a high percentage of fatty acids.

The Soaps

Soaps are the product of a combination of fats with potash, soda or other strong bases. Being strongly alkaline, they are not compatible with a number of ingredients useful in warp sizing and therefore, are not as efficient as neutral lubricants. Their chief purpose is to act as emulsifying agents for the unsaponifiable oils. Since they are capable of dissolving or emulsifying these oils they are used to make them miscible with water. Soaps also should be avoided whenever possible, due to their tendency to foam. On the other hand, they do have good penetrating and wetting-out properties and while this characteristic is not desirable for lubricating purposes, still, it makes them efficient as softeners.

Waxes form a group of fats resembling beeswax in some of their physical properties. The word *Wax* has no particular meaning, and widely different fats are arbitrarily called waxes. There are three groups of waxes—vegetable, animal, mineral. The substances called vegetable and animal waxes come under five groups: First, fixed oils, as mentioned; second, soft fats; third, solid fats (tallow-like substances); fourth, hard waxes; and fifth, resins. Some are difficult to saponify, others saponify quite readily, and some are unsaponifiable. Their composition and properties are so widely varied, there is not much justification for a common classification under one name. The principal waxes used in sizing are: beeswax, Japan wax, carnauba wax, candelilla wax, paraffin wax and spermacetti.

A natural fat may be treated with chemicals to form a combination with properties different from the original fat. For example: sulphonated oils and sulphonated tallow. The purpose of sulphonation is to produce a fat soluble in water. The same criticism can be made of these products as is made of soap, viz., while they are soluble and therefore good penetrants, causing them to be good softeners, they are poor lubricants.

Synthetic fats are produced through syntheses from fats low in viscosity combined with additional substances to make of them fats with greater body and greater viscosity. An example of this is oleomargarine, which is obtained from oils through hydrogenation and thus turned into fats of the appearance and consistency of butter.

Let us now take up some of these products in detail:

Oils. Most saponifiable oils contain a proportion of fatty acids which increases with time of storage. Refined mineral oils should be practically free from acids. Drying oils are oils that absorb oxygen from the air and become gummy, losing their lubricating value. Linseed oil is the best known oil of this type and while it forms a good protecting film for wood surfaces, such as in paint, it can be readily understood that it is no good as a lubricant.

Mineral Oils in Sizing

Mineral oils are produced from petroleum, shale, lignite. They are divided into saturated, unsaturated and closed chain hydrocarbons. Those used for lubrication have a flash point in excess of 350 degrees F. There are a great number of mineral oils. They mix with all fatty oils except castor oil. Some of these mineral oils are valuable in sizing preparations, due to the wide diversity of viscosity obtainable and because they are inert to chemical action, and therefore, compatible with most chemical substances used in sizing. They find a place in sizing because by carefully selecting some oils of the proper viscosity and solvent properties it is possible to soften the hard, brittle waxes coating the natural fiber of cotton, thereby making it easier for the finisher and dyer to prepare his cloth for subsequent processes.

Unfortunately, mineral oil used in sizing has been blamed by unthinking finishers for some of their troubles. Mineral oil that has been in a bearing and has become impregnated with fine particles of metal from this bearing, will, not by its own nature, but by the presence of this metal, interfere with the bleaching and dyeing processes. Also, due to its softening and penetrating properties, when mineral oil is dropped on cloth and the cloth is dyed before being de-sized, sometimes a greater absorption of dye at these spots will result in dark stains. However, when properly dispersed and combined with a size mix, mineral oils should not be blamed for any trouble, but

should be praised for their helpful qualities.

When used for sizing, they should be mixed with an ample amount of saponifiable fat so that when the fat is saponified in the bleachery, the resulting soaps mechanically occlude or dissolve the mineral oil, as soap will occlude dirt, and the mixture is easily removed in the subsequent washing processes. The necessity for the careful selection of oils is one of the many reasons why a sizing compound manufacturer should have capable chemists controlling his manufacture, because when not properly handled a very valuable ingredient could be a menace, but when controlled and blended with the proper technical knowledge, it is a very valuable ingredient in the size mix.

Cocoanut oil is a white fat, of about the consistency of butter and has the odor of cocoanut; its melting point varies from 70 to 80 degrees F. Cocoanut oil forms a soap that lathers freely even in fairly salt and hard water. It makes a good softener but readily turns rancid, which is objectionable, as it imparts a disagreeable odor to the cloth.

Palm oil in its natural state is almost blood red. Its consistency varies considerably, as well as its melting point, which is between 65 and 70 degrees F. Palm oil is a useful fat, readily bleached to a pure white. It makes an excellent soap. It generally contains a very considerable amount of free fatty acids. It is produced by special treatment of the ripe fruit of the palm tree, and is composed chiefly of palmitin and olein with not more than one per cent of stearin.

Castor oil is a product of the seed of the common castor plant. It is obtained by expression and extraction; its chief constituent is triglyceride of ricinoleic acid. It contains a small amount of stearin. Castor oil has good softening qualities and marked viscosity. The best grades are white; lower grades appear green to brown. It is used extensively in the manufacture of sulphonated castor oil.

Olive oil. This oil has considerable value, and is used especially in finishing. Produced from the barely ripe fruit of the olive tree, the finest oil is obtained from hand picked fruit by careful crushing without breaking the kernel. A lower quality of oil is then produced by further treatment with hot water, and finally with solvents, especially carbon disulphide. It has good oiliness. A good grade does not turn rancid readily nor develop objectionable odors. It is a good type of non-drying oil for warp lubrication, but lacks body and viscosity to make it a perfect size lubricant.

Corn oil. This oil is pale yellow; has the characteristic odor of corn, and is used extensively in soap making, also as a substitute for castor oil to prepare soluble oil.

Cotton seed oil is a product of the seed of the cotton plant. Its melting point is between 38 and 40 degrees F. It is used extensively for soap making. Being a semi-drying oil, it is not good material as a lubricant.

Tallow oil is obtained as a by-product of the manufacture of stearin by pressing tallow. It is mainly olein.

Pine oil. From the fractional distillation of crude pine oil is produced a light oil reminiscent of the odor of pine needles, which has good solvent and penetrating qualities. Its most valuable action in sizing is softening the hard waxes contained in raw cotton and facilitating their removal in later processes.

Tallow

Tallow is composed of the glycerides of stearic, oleic and palmitic acids. Mutton tallow is whiter and melts at higher temperatures than beef tallow, due to its higher content of stearin. The melting point of tallow varies from 110 to 120 degrees F. according to its origin, the climate and the conditions the cattle have lived in. Cattle feeding on grass produce harder tallow than cattle fed on such food as oil cake. Tallow from pasture-fed cattle is superior in sizing quality to tallow produced from stall-fed cattle. The flash point of tallow is above 500 degrees F., and its specific gravity is about .860.

Tallow is not an ideal lubricant for sizing when used alone. Many tallow substitutes are offered under such names as rectified tallow, soluble tallow, etc. Some are mixtures of tallow oil and waxes which presumably infer a rectification; others are mixtures of tallow, soap and water; some contain sulphonated tallow. Their value as a lubricant or softener is in proportion to their fat content and the quality and nature of this fat. Tallow has fair oiliness, but lacks viscosity, and, at high temperature, in body, which keeps it from being an ideal warp lubricant when used alone. Some vegetable wax, some high melting point fat and some viscous oil should be added to it.

Tallows are graded according to quality, and several grades are on the market, from edible—the best—to very low grades of inedible, poor both in color and composition. For use in sizing, tallow should be carefully rendered so as to be free from odor, color and especially free from fatty acids. Fatty acids have a marked effect on starch films produced from a size mix. Since there is no restriction on what can be sold as inedible tallow, it often includes bone grease, horse tallow, hog fat, etc. It pays to use nothing but edible tallow. Inedible tallow is rendered by putting scraps into a large pressure kettle and cooking them out under pressure for a number of hours. At the end of this time, the fats float on top and are drained off. Since the scraps often contain portions of meat, bones, etc., and since they often are allowed to remain in hot temperatures for many days before being rendered, a poor grade of grease is produced, usually running very high in free fatty acids due to decomposition before being rendered. Also the viscosity is usually low due to the presence of the thin oils extracted from the bones and miscellaneous fats.

Edible tallow salable as a food product is controlled by the government, which imposes very strict supervision, rules and regulations upon its manufacture. Only fats from certain parts of healthy cattle can be used for edible tallow. The temperature and length of time these can be kept before being rendered and the procedure in rendering is specified. The very best portions of the scraps, free from bone and meat, are used. These must be kept in a refrigerated room, preparatory to rendering, to keep down decomposition, and the tallow must be rendered in steam-jacketed, open kettles, which prevent the breaking down of the prod-

uct through high temperatures and pressure. There is a heavy penalty for labeling anything as edible unless it meets specifications of the government and usually a government man is present while rendering is being done of any edible tallow for inter-state shipment. These precautions make it well worth while for the manufacturer to pay the difference in price between inedible and edible tallow.

Lard. As in the case of tallow, the consistency of lard depends on the habits of the animal. Lard from the wild hog has much more body than that of the domestic animal, the melting point varying from 95 to 110 degrees F. Very little lard, however, is used for warp sizing since it has a lower melting point than tallow and the cost is higher than its value as a sizing material justifies.

Soaps. The most common are soda soaps and potash soaps. A combination of fatty acid with potash produces soft soaps, while the hard soaps are made by a combination of fatty acid with caustic soda.

Waxes. Beeswax is produced by the common bee. It is the secretion of certain organs situated in the abdomen of the worker. It is used to form the cell of the honey comb. A bee consumes ten pounds of honey to produce approximately one pound of wax. In nature it is a yellow product which can be readily bleached to a perfect white; it has a pleasant honey-like odor. When cold, it is brittle; in warm weather it is tenacious. The specific gravity is .970 at 60 degrees F.

Japan wax is a vegetable wax obtained from the berries of some eastern plants; this fat is light yellow when refined. Its melting point is about 122 degrees F. It is composed of glycerides which are saponifiable. It is used extensively in sizing and finishing, being especially valuable for its good body and viscosity, making a very good warp lubricant. Being saponifiable, especially when mixed with tallow, it is readily removed if its presence is objectionable in processes of finishing.

Carnauba wax is a product of the Carnauba palm, which grows in Brazil. It is of a dirty yellow color; hard, brittle; melting point 180-188 degrees F. The principal constituent is the myricyl ester of cerotic acid.

Candelilla wax occurs as an excretion from a plant growing extensively in northern Mexico and southern United States. Its melting point is 140-175 degrees F. It has the color and appearance of beeswax, but is much harder. High melting point waxes are used to increase the viscosity of low melting point fats.

Spermacetti is obtained from the cavities of the head of the sperm whale; it is almost blue white, crystalline, and melts at about 115 degrees F. It is composed mainly of cetyl palmitate. It has a very good body.

Sulphonated castor oil is produced by the action of sulphuric acid on raw castor oil. After the reaction, which must be rigidly controlled as to temperature and rate of addition of acid, has been completed, the mixture is neutralized with caustic soda and washed with salt water to eliminate all excessive acid. The purity of this product depends upon the purity of the raw materials and the technique of the operator. This fat is used mostly in finishing but in some cases of sizing it finds application where there is not sufficient body to the size mix to hold a raw fat in emulsion.

Sulphonated olive oil is used for similar purposes as sulphonated castor oil and is made in a similar manner. As it does not have the tendency to develop a bad odor on standing, it is an excellent product for finishing but not often used in sizing.

Sulphonated tallow is used more extensively in sizing than sulphonated castor oil or olive oil, but is not as efficient a lubricant as the rectified tallow made by the addition of certain waxes and oils.

Nature offers a great variety of fats. Those mentioned are only a few of those available for warp sizing. No one of them alone is ideal either as a lubricant or softener, a mixture of at least two, preferably several of them, is essential to obtain the best results. The price, the quality and the supply available control the selection of the best mixture most economically compounded.

The gums in sizing not only have their proper individual adhesive or agglutinant function, but they must as well favor the formation of permanent emulsions of fats. An emulsion of a neutral fat in a gum is preferable to a soap solution or sulphonated fat for sizing purposes.

Soap and soluble oils, sulphonated oils, or any combinations of fats and alkali are incompatible with some of the most useful sizing ingredients, and for this reason neutral fats thoroughly emulsified in a gum medium are preferable to fats combined with alkalis.

The object of lubrication being to protect surfaces. An ideal lubricant must not penetrate the yarn excessively, but must form, with the size film, a protective, resilient coating on the surface of the warp yarn.

Republic Steel Moves

Effective January 25, the general offices of Republic Steel Corporation were removed from Youngstown, Ohio, to Cleveland, Ohio, it was announced by T. M. Girdler, president and chairman of the board. The offices occupy floors 13 to 16 inclusive in the former Medical Arts Bldg., recently renamed the Republic Bldg.

The move consolidated the general offices which have beeen located in Youngstown, the executive and Cleveland district sales offices formerly in the Union Trust Bldg., Cleveland, and the advertising department, Massillon, Ohio. The sales offices of the Newton Steel Company are also located in the Republic Bldg., Cleveland.

The departments affected in the move include: general operating, general sales, treasury, purchasing, accounting, credit, claims, ordering, coding, traffic, patent, advertising and sales promotion, sheet and strip sales, pipe sales, bar sales, tin plate sales, railroad sales, culvert sales, pig iron and by-product sales, engineering, industrial engineering, salvage and reclamation, and industrial relations.

The sales offices of the Alloy Steel Division of Republic remained in Massillon, Ohio.

THE PIONEER--By William P. Jacobs

This, the seventh in the series taken from Mr. Jacobs' book, vividly describes some of the conditions and trials of the earlier years. . . .

IN THIS installment, with which we resume our reproduction in large part of Mr. Jacobs' book, the author takes up in detail the early textile experiences of Captain Ellison A. Smyth. The first installment, in our July 1935 issue, dealt with the background and youth of Captain Smyth, and subsequent chapters have delineated briefly the lives and records of some of his contemporary textile pioneers. We return now to the Captain, with details of his organizing Pelzer, the hardships encountered and overcome, and his successful ventures.

These word pictures are valuable and inspiring in recording the story of southern textile development, while at the same time revealing the characters, attributes and achievements of the individuals involved . . . . . .

Perhaps a good definition of a true pioneer is one who, beginning with nothing, launches out into the great unknown with courage and determination.

At least, it is admitted that a good test is found in the willingness of the pioneer, in the face of lack of experience in the path which he seeks to follow, and in spite of a minimum of re-assurance, and handicapped with the scarcity of comparative experiences of others, to strike out fearlessly with only his own determination and self confidence. Such was the case with Captain Ellison Adger Smyth. While his early training was sufficient to develop unusually strong characteristics, which stood him in good stead as he faced the uncertainties of hitherto untrodden paths, yet in his early life there was nothing in the nature of industry in his experience.

Shortly after his marriage in 1869 he was admitted as a partner in the wholesale hardware enterprise of J. E. Adger and Company in Charleston. In 1881, however, he began to realize that the future of the jobbing trade in Charleston was jeopardized by adverse freight rates, and by the concentration of wholesale houses in outlying cities which Charleston had previously supplied. Charleston's territory was suffering a steady limitation.

From such mountain homes as these, the cotton mill operatives have come . . . . .

Discouraged with the limitation of the Charleston territory, and encouraged by the lives of the few earlier pioneers in the industrial field, he determined to leave the city of his birth and bid good-bye to wholesale activities, and enter into the field of cotton manufacturing. At the time when his determination took definite form, he had never been in a cotton mill.

Because of the limitation of the Charleston wholesale territory, the firm of James Adger and Company, Bankers, failed. Captain Smyth was appointed assignee for James Adger and Company. After he had settled the affairs of the company, and paid off every creditor, his close friend and associate, Mr. F. J. Pelzer of Charleston, in approaching him one day said, "Ellison, the wholesale business of Charleston is a thing of the past. What are you going to do for the future?" His ready reply was: "I am not going to sell goods. I am going to make my future in another direction. I am thinking seriously of buying the Fork Shoals Manufacturing Company, and of going into the cotton manufacturing business." Whereupon Mr. Pelzer immediately advised him that the enterprise was entirely too small and too far removed from a railroad. After a conference, the two agreed that they would go together and organize a company at Pelzer, on the river, where adequate water power could be secured, and near the Columbia and Greenville Railroad.

Organizing the Pelzer Mill

Mr. F. J. Pelzer and Captain Smyth were life-long friends. Mr. Pelzer was one of Charleston's most public-spirited citizens. He was one of the organizers and directors of the Anderson Phosphate and Oil Company, located at Anderson, S. C. He was a large investor in cotton mill stocks, and always lent a helping hand to new corporations located in different sections. He was extensively interested in banks and other types of industrial enterprises as well.

Having reached this determination, Captain Smyth busied himself in the sale of sufficient stock in the proposed new corporation to make it a possibility. Capital was over-subscribed, Captain Smyth, his relatives and Mr. Pelzer and friends purchasing all of it.

Accordingly, with his family, he moved to Pelzer and began the erection of the Pelzer Manufacturing Company and its village. For some time he lived in one of the mill houses there.

The capital stock of the Pelzer Manufacturing Company originally was $400,000. The mill was located near the Saluda River. The first mill had 10,000 spindles. Three other mills were subsequently built, making total spindles of 136,000. The capital was gradually increased to $1,000,000.

Captain Smyth was the first president and treasurer of the Pelzer Manufacturing Company, and he held both offices for 43 years, until he sold the entire company—which at the time of the sale had a trade-in capital stock of $1,000,000, and employed 1,500 operatives—for a price of $9,000,000. The property embraced the complete mill village, with population of over 5,000.

It is singular that Captain Smyth's determination to build was never more spectacular or more wise than his determination to sell. He had the uncanny

This material is taken from "The Pioneer", published by The Jacobs Press, Clinton, S. C., price $3.00 per copy.

faculty of knowing when to do a thing, and when to stop doing it.

It should be noted at this point that the erection and operation of a cotton mill at that time was no simple matter. Hardships and difficulties were on every hand. First he was faced with the skepticism of those who were investing their funds in the financing of his enterprise. For the most part his financial supporters were not blessed with the same intuition and foresight that Captain Smyth possessed. They were naturally of a conservative type, and it was always with a great deal of fear and misgiving that Captain Smyth entered into steps which represented radical departures from the accepted customs of the day. Aside from the attitude of his financial backers, however, he had the problem of building at Pelzer a modern mill (modern for that day) in a backwoods section—away from civilization, away from masses of population. It was necessary for him to build a complete village along with the mill. It was necessary to arrange the commercial phase of the village so as to accord his people all of the conveniences of life. Schools had to be built, and churches, and later other village facilities, as the standards of living improved and the demands of the people became more complex.

. . . to modern villages, with healthful, inspiring surroundings . . . . . and are working in them today.

The Problem of Training Help

Another serious problem facing the erection of a mill in 1881 was in the matter of securing adequate help. For a time sufficient workers could be secured in the neighborhood of the mill itself, for they came in from the farms, hoping for an increased income. But after a time this once adequate source of help dwindled, and it became necessary to recruit workers from the foothills and mountains beyond. It required a great deal of persuasion to convince a backwoodsman that higher standards of living awaited, with education, and all the modern conveniences and comforts of life. But Captain Smyth, as one of the pioneers in the textile industry, did convince thousands; and it is to his credit that many of the sons and grandsons of the mountaineers who originally came from the backwoods regions of North Carolina and South Carolina to Pelzer, followed him later as he moved on with the erection of other textile plants in other regions. The Captain, when reflecting upon the many difficulties which he faced during the early years, states that he often felt much as Moses must have felt when he led the children of Israel out of Egypt and into an uncertain future. His people, discouraged by a new environment, were besieged on every hand. A serious epidemic of measles spread. Other diseases plagued their lives. A stout heart was necessary to meet the emergencies.

It is stated that within recent years, when he moved to Flat Rock, N. C., and built the Balfour Mills, that spontaneously many of the people from Pelzer and Belton followed him to Balfour, because of their devotion to him and their confidence in his leadership. Many who followed him were the descendants of the original mountaineers who came to Pelzer when he issued the first call.

Another problem facing Captain Smyth in the erection of his first mill was in the fact that very few of his employees had ever been in a cotton mill before. None of them knew any of the intricate details of cotton manufacturing. They had to learn anew, and many of them had passed the age when learning was simple. It was a new life for them, but they entered into it through the leadership of the pioneering spirit of Captain Smyth. Captain Smyth's mills, being among the first, naturally became the training schools for hundreds of thousands of cotton mill workers, who with their sons and their grandsons have manned hundreds of cotton mills throughout the Southeast.

Many interesting stories are told of the experiences of Captain Smyth with his first workers. Those of pure Anglo-Saxon stock, who came down from the mountain sections of North and South Carolina, proved to be most adaptable and valuable citizens, whose strongest characteristics were their independence, strong personalities, and their willingness to follow when clearly shown that it was to their best interest. Yet they were suspicious, impossible to drive, and at first greatly influenced by the local politicians and demagogues, who made life a misery to the cotton mill executives.

In the early days there were no sewer systems, and living conditions—while a great improvement over the conditions of the mountain fastnesses, representing a decided step upward in the standards of living for the people who came down to become the first mill workers—still left much to be desired. There were no water systems. Wells had to be dug throughout the villages.

It is interesting to note that at Pelzer, Captain Smyth first built story-and-a-half houses, thinking that they were getting more rooms under one roof and on one foundation; but they found to their surprise that the upper rooms were seldom used, that the employees did not like to go upstairs. As a consequence, all later houses which have been erected by Captain Smyth in his mill villages have been built on one floor.

It should be remembered that there was no electricity at that time. The mills were run by steam engines, and the mills and the houses were lighted by kerosene lamps.

Captain Smyth has always had a strong conviction, in the matter of the cotton mill village, on the subject of company stores. He has never permitted the organization or operation of a company store in his village. He has always insisted that his workers be allowed to trade where they please; and while the modern company store of today is most careful to avoid coercion or forced trade, the Captain throughout the years past has always avoided the danger of such a tendency by steadily refusing to allow his mill companies to operate stores of their own.

"Electric Lamps Made Her Sick"

Among the interesting experiences of Captain Smyth in those pioneer days, the Captain himself tells the following: "The number 1 mill of the Pelzer Company, built in 1882, had incandescent lights—the first mill to use them, as mills at that time were all lighted with kerosene glass lamps, which were carried lighted into the mill and placed in holders. After a few months at Pelzer one mountain family left, giving as the reason, sickness which was caused by the electric lamps in the mill."

"Another interesting incident is related of an old mountain woman, who up to the time she died, insisted upon going out on the veranda and blowing her horn very vigorously when she thought it time for her

husband and older children to return from the mill to dinner."

"It was interesting to watch the gradual development of the families from the backwoods in North Carolina who brought everything they had in a one-horse wagon, everybody barefooted, and to see the gradual effect of living in a community surrounded by other people. Gradually you could notice the change in their appearance as shoes and stockings appeared, and then perhaps ribbons around their heads, and hats to adorn them."

It was very difficult to force the parents to send their children to school, as they were without education themselves and did not value education so highly for their children. They did not know what it meant. It was awkward work, though in 1890 the South Carolina Cotton Manufacturers Association, of which Captain Smyth was president for 14 years, appointed a committee to urge the Legislature to enact three important laws—a compulsory school law, a marriage license law, and a birth registration law. It was impossible to enforce labor laws properly unless the age of the minors could be authentically ascertained.

In spite of handicaps, however, which one would naturally expect to meet in forward-looking movements, Captain Smyth has retained his self-confidence throughbout life. He applied himself assiduously to his tasks. He determined to learn not only about manufacturing, but about the philosophy of life. He studied the needs of his people and their peculiarities, and few textile executives in history have been so well versed in the requirements of successful manufacturing as is Captain Smyth. He has known what the workman needs most for happiness; that is, steady employment, in a mill where the yarn is good and strong and the work runs well. He knows

Captain Smyth, as the years advanced . . .

Captain Smyth and two of his great-grandsons: Anthony Foster McKissick II and Ellison Smyth McKissick, Jr. . . . . .

the workman also needs domestic happiness, the comforts and conveniences of life, the pleasure of association with friends, and the advantages of citizenship.

Captain Smyth also well understood the responsibilities of an employer: to see that his employees were properly housed, given steady employment, were paid in cash, and that special advantages were given them in the way of community developments such as community houses, libraries, churches, recreation grounds, and general welfare work of that type, though the Captain has always been wise enough not to overdo in the field of welfare work. He has known that it can easily lead to that most dreaded of all accusations—paternalism. He has always enjoyed the confidence, and in most instances the deep devotion of those who worked for him. He has also known well the limitations of association between employer and employee, and has never been willing to pass the danger line which marks the difference between a successful employer and an overbearing and paternalistic one.

He has had a deep insight into the hearts of men and women who have worked for him, and he has his ideal of what a perfect workman should possess—a high-toned moral life, loyalty to his friends and to his employer, honesty in fulfilling his contracts and in giving full return for value received.

The present generation of workers in most of the cotton mills of the South are the second and the third generations of those who first entered the employ of the cotton mill. The advantages of education, religious and social life in a mill village, have all tended to lift the living standards of the workmen of today as compared with fifty years ago. Improvements in their ideals of life and in their appreciation of the responsibilities of citizenship are most marked and most pleasing. The change of outlook on life on the part of the cotton mill worker of the South has been most gratifying; and it is through the keen insight into the needs of the workers in the South by such men as Captain Smyth that great improvements have been made in the standards of living for southern workers.

It would be interesting to read a book—and it would have to be a very large one—that would list the names of the workers who have served under the leadership of Captain Smyth during his long and useful life.

Many years ago, while he was at Pelzer, a list was made of 53 men who were workmen at Pelzer and Belton under Captain Smyth, who had gone out from

these mills and become mill superintendents; but unfortunately the list is lost.

It is not unreasonable to state that the friends and followers of Captain Smyth, among the working classes of people, can be numbered in the hundreds of thousands; and that thousands of the more prominent superintendents and overseers of the South owe to Captain Smyth their training. Scores of higher executives owe their start in textiles to Captain Smyth.

The difficulties of pioneering in the field of industry are too numerous to mention in this volume in detail, but perhaps the most serious problem which faced the young executives of Captain Smyth's day was the uncertainty of new departures and new inventions in the field of industry. Particularly was this true of electricity. Captain Smyth believed that the principal characteristics of a leader, a builder and a pioneer, were faith in the proposition undertaken; confidence in himself that he, with ample support, could succeed with any reasonable experiment.

In 1896 it was decided that the Pelzer Manufacturing Company should build a Number 4 mill, equal in size to the three that had already at that time been built. Land was accordingly purchased for the additional village and the mill site was selected at a point four miles below Pelzer, where there was another shoal to be developed on the Saluda River. Later it was suggested to Captain Smyth, by Mr. Stephen Green, that the new mill and village should be erected at Pelzer on land which was already owned by the company, and that a dam and water power should be developed four miles below Pelzer, at the point of the shoals where it was originally suggested the village should also be erected. This involved carrying the electrical current four miles by transmission lines. This was a radical, new departure. Captain Smyth, in his characteristic manner, decided to take the step. It was considered then an extravagant experiment by other mill men, and failure was freely predicted. So widespread was the prediction that it had the effect of depressing the Pelzer company stock on the Charleston market, and it was generally reported throughout the area that Captain Smyth was doing a dangerous thing.

However, to the great credit of the young pioneer, it should be stated that the experiment was finally successful, though for a year the General Electric Company used Mill No. 4 of the Pelzer Company as an experiment ground, testing various kinds and forms of electrical motors, much to the annoyance of Captain Smyth and actual loss to the mill.

Bought First Automatic Looms and Tying-In Machines

Success, however, finally crowned his efforts. With the same pioneering spirit Captain Smyth experimented in purchasing the first 1,000 Draper automatic looms which were ever sold, and they were erected in his mills at Pelzer. Although they were very inferior compared with the modern looms that were later developed, and although they were replaced in a few years, this forward step of Captain Smyth—typical of the pioneer—was a success. The broad vision of the Captain made Mill No. 4 a show mill and caused many visitors to come to Pelzer who were interested in textile development.

Another forward step taken through the ingenuity and vision of Captain Smyth was the purchase of automatic tying-in machines for his Pelzer mills. They were purchased from Mr. Colman, and records will show that Captain Smyth was the purchaser of the second, third and fourth automatic tying-in machines ever sold. Two were installed at Pelzer and one at Belton.

In three forward steps undertaken by Captain Smyth he was distinctly a pioneer, and the first in his field to undertake them. He installed the first electric drives ever used in cotton mills. The installation was in 1895. In the same year he bought the first Draper automatic looms that were produced. In 1881 he had already installed the first incandescent lighting system ever installed in a cotton mill of the United States. It must have required courage for this young executive, inexperienced as he was comparatively in the industrial field, to take the leadership in harnessing the strength of electricity and making full use of radically different machines in the improvement of the process of manufacturing.

(The next installment, which will continue this detailed discussion of Captain Smyth, will conclude our reproduction in part of "The Pioneer".—The Editor.)

Eagle and Phenix Mills Exclusive Licensees of Aqua Sec

Eagle and Phenix Mills, Columbus, Georgia, have been named exclusive licensees in the cotton industry on the products of their mills for Aqua Sec, the water repellent process. The addition of the new licensees of Aqua Sec marks the continued broadening application of this process in the textile industry.

Patents Granted

According to Paul B. Eaton, patent attorney, Charlotte, N. C., Walter C. Stewart, Gastonia, N. C., has been awarded a patent for an improved type of differential for roving frames. This type of differential is said to have less friction than others in that it has sprocket wheels and sprocket chains for obtaining the motion.

Other textile patents were received by Walter Alcorn and Lloyd Hamiter, Columbia, S. C., for a re-sizing and drying machine for garments. Bon Huggins, Greenville, S. C., was issued a patent for a device for stabilizing picker sticks and Deckard J. Gray, Ware Shoals, S. C., a patent on a method of retaining band to hold a folded shirt.

New Executive Staff of Textile Banking Company

A. E. Duncan, chairman of the board of Commercial Credit Company, which owns control of Textile Banking Company, announced on February 13 that the organization of the new executive staff of Textile Banking Company, brought about by several recent changes, is as follows:

Harvey D. Gibson, chairman of the board (since organization of the Textile Banking Company); A. E. Duncan, president (chairman of the board, Commercial Credit Company; James D. Hopkins, vice-president (since organization of the Textile Banking Company); R. G. Woodbury, vice-president (with Textile Banking Company 14 years); B. A. McDonald, vice-president (former president, Commercial Credit Trust, Chicago); Bernard B. Butler, vice-president (with Textile Banking Company 14 years); Ernest A. Hecker, vice-president (credit man, with Textile Banking Company 6 years); Curtice L. Mathews, treasurer (vice-president, Commercial Credit Corporation); Francis E. Taylor, secretary (legal department, Commercial Credit Company); John C. Allers, assistant treasurer (general auditor, with Textile Banking Company 16 years); J. Raymond Timmes, assistant secretary (with Textile Banking Company 16 years); and Walter Connolly, assistant secretary (with Textile Banking Company 16 years).

Mr. Duncan stated that the operations of the Textile Banking Company will be continued on the same fundamentals and policies as heretofore, that all decisions as to its relations with its customers, credits, advances and otherwise will continue to be made promptly by its officials located in New York with full authority.

As an extension of the activities of Commercial Credit Company, and to diversify its business, two factoring concerns were acquired—Textile Banking Company in September, 1933, and Edmund Wright Ginsburg Corporation in July, 1935, each of which will continue to be operated independently.

Practical Pointers on Reproducing Textile Fabrics from Sample

By E. V. Wilson

THE subject of cloth analysis, in the sense of determining just what goes into the fabric, has always seemed to the writer to be something remote to the majority of men in a semi-official capacity in a textile plant, and the most overworked word in this respect seems to be "about". Although this phase of textile work seems rather difficult, it is in reality very simple, if extreme care is practiced in carrying it out correctly.

To begin, we have a small sample of cloth that we wish to duplicate, and the only information we have is the width, which is 32¼ inches. After counting the sley and pick with a pick glass, we find that it contains 74 ends of warp yarn per inch, and 64 ends of filling yarn per inch. A count of one selvage shows it to contain 12 ends of two-ply yarn. The warp ends per inch × the width of 32.25 inches, will give us the ends of warp yarn in the fabric, not taking into consideration the selvage being plied yarn, which will add an additional 24, making a total of 2,410 single ends of warp yarn.

74 sley × 32.25 width, equals 2386 ends, body and ½ selvage 2386 plus 24 selvage equals, equivalent to 2410 single ends in warp.

At this point, we have the following information: Sley and pick, 74x64; width, 32.25 inches; 2 harness; ends per dent, 2. (Ends per dent are discernible through a pick glass).

In de-sizing this cloth, the proper laboratory facilities not being available, the following method has been found very satisfactory, for all practical purposes:

Cut a 16-inch square of the sample, place in an electric oven, and allow to dry out thoroughly. Remove from oven and weigh, after removing, wash sample briskly with warm water and Ivory soap for a few minutes. Rinse sample thoroughly with water, and return to the oven until thoroughly dry. Remove and weigh.

This particular sample of cloth that we are analyzing before the de-sizing process weighed 271 grains. After de-sizing, this sample weighed 252 grains.

252 divided by 271 equals .93, which shows that the cloth lost 7 per cent in the process of de-sizing.

The writer realizes that some of this sizing was flecked off in weaving, but having only a small sample at the time this test was made, there was no way to ascertain what per cent was lost, so it has been ignored in this article.

In analyzing the warp yarn to find the take-up, or contraction, the following process will give you an accurate figure.

First, take a pick needle, or pointer, and pull 10 ends from the sample, warpwise. Measure these ends off on a steel rule at 6 inches, without stretching, holding it with your thumbs, one end at a time. Then pull out gently until the marks of the filling weaving-in have disappeared. The party doing this work must be very careful that he does not stretch the yarn beyond the point of straightening. This is possible by feeling the thread tighten under the thumbs, and watching very closely. An average of these 10 ends showed 5/16 of 1 inch take-up, caused by the interlacing of the filling yarn.

5/16-inch or .3125 divided by 6.3125 length of end after straightening equals 4.95 per cent take-up in the warp yarn.

The filling shrinkage, or contraction was taken, in identically the same manner as the warp yarn, and found to be weaving-in ½ inch.

½ or .5 divided by 6.5 length of filling end after straightening equals 7.69 per cent shrinkage in the filling yarn.

The following information has been found thus far.

Sley and pick 74x64; width, 32.25; ends 2,362 single ends plus 24 2 ply or 48 single ends (selvage) equals 2,410 single ends. Warp take-up 4.95 per cent; filling take-up 7.69 per cent; sizing, 7 per cent.

Determining the Warp Yarn Number

The following is a test to find the warp yarn number:

40 ends of the warp yarn were pulled out of the sample, and the weaving-in of the filling yarn was pulled out and cut to 4 inches, being very careful not to stretch (these ends were pulled out and cut one at a time), making a total of 160 inches of warp yarn. These ends were carried to a grain scale and weighed, and found to weigh 1.25 grains.

$$\frac{160 \text{ inches} \times 7000 \text{ grains in lb.}}{36 \times 840 \times 1.25 \text{ grains}} = 29.63\text{s warp yarn number.}$$

This yarn was not de-sized. The following figures will give the warp yarn number as it came from the spinning department unsized.

1 less 7 per cent sizing equals .93.

29.63s divided by .93 = 31.86s unsized warp yarn number.

This completes an analysis of the warp yarn, in the simplest way to do this work, in the opinion of the writer, who has had several years' experience in this type of work.

The filling analysis is made in exactly the same manner as the warp yarn analysis.

40 ends of filling yarn were removed from the

sample, and the warp weaving-in was pulled out to 4 inches each, and found to weigh 1.04 grains.

$$\frac{160 \text{ inches} \times 7000 \text{ grains in lb.}}{36 \times 840 \times 1.04 \text{ grains}} = 35.61\text{s filling yarn number.}$$

Using the figures that have been found throughout this article, as given below, will give the yards per pound:

$$\frac{2410 \text{ ends}}{840 \times 29.63 \text{ warp yarn number} \times 1 \text{ less } 4.95 \text{ take-up}} = .1019 \text{ pounds per yard warp yarn.}$$

The reed spread was found in the following manner.

1 less 7.69 per cent shrinkage in filling = 92.31.

32.25 width divided by 92.31 equals 34.94 reed spread.

$$\frac{34.94 \text{ reed spread} \times 64 \text{ picks per inch}}{840 \times 35.61 \text{ filling yarn number}} = .0748 \text{ pounds per yard filling yarn.}$$

.1019 lbs. per yd. Warp Yarn
.0748 lbs. per yd. Fill. Yarn

.1767 lbs. per yd. Warp and Fill. Yarn

1 divided by .1767 equals 5.66 yards per pound.

The dents per inch in reed used to make this fabric was found as follows:

2362 single ends plus 24 two-ply equals 2386 ends.

The fabric was drawn 2 per dent. 2386 divided by 2 equals 1193 dents used.

1193 dents divided by 34.94 reed spread equals 34 dents per inch. In re-checking the above analysis, the writer cut a circle of cloth 2 inches in diameter, being very careful not to fray the edge of the cloth, using a circular stamp that can be made in any textil machine shop. This sample weighed 3.36 grains.

$$\frac{3.1416 \times 7000}{36 \text{ Inches in yard} \times 32.25 \text{ width} \times 3.36 \text{ grains}} = 5.64 \text{ yds. per lb.}$$

A mill making a similar piece of cloth carried a standard weight of 5.75 yards per pound.

The yarn numbers found in this article would be the most economical to use from a cost standpoint, due to the heavier filling, and lighter warp, but the writer has found that better results are obtained from a heavier warp and lighter filling, as 30s warp unsized, and around a 40s filling.

A print cloth has been selected for this test, because of the large number of mills that run this type of cloth. The writer has tests that have been made on broadcloths, warp and filling sateens, twills, wide sheetings, and crinkle bedspreads.

In this analysis we have found the following information: Fabric, print cloth; count 74x64; width (given), 32.25 inches; warp yarn, 29.63 (sized), 31.86 (unsized); filling yarn number, 35.61s; yards per lb., 5.66; harness 2 (1 up 1 down); ends per dent, 2; sizing 7 per cent.

This analysis can be used to great advantage in the mill that does not have a modern laboratory, and will vary only slightly with the best laboratory tests available.

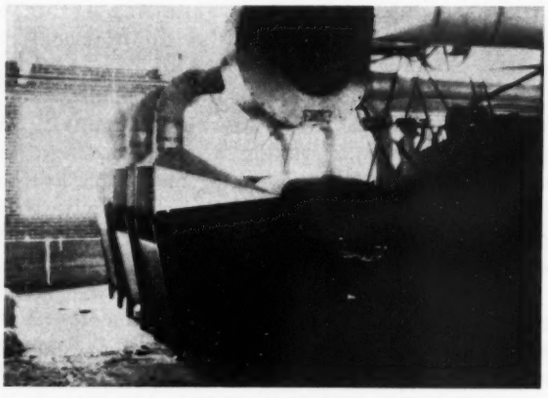
Improving Working Conditions in the Opener Room

A dustless ventilator designed and installed to relieve dust accumulation . . . . . .

THE opener room of the Cliffside Mills, Cliffside, N. C., has been equipped with a new dustless ventilator which is a protection to the health of the operatives in that department.

It works on the principle of air pressure overcoming the force of gravity. The collecting hoods on the machines were designed to operate as near as possible to the points of dust generation and each hood was supplied with a volume of air sufficient to cause the foreign matter stirred up to be drawn away from the point of disturbance. One main air duct supplies the subsidiary ducts that work over each machine. If necessary, it is explained, the air may be filtered and used again thus saving the heat and room humidity in the air.

This collecting of dust and lint affords the operators of the machines more desirable working conditions. Also, the foreign matter removed at this process eliminates some of the unsanitary conditions that prevail in later manufacturing. Then too, the machines that follow this process are not injured as much by the accumulation of lint as would otherwise be the case.



An illustration showing how the dustless ventilator is installed on the opener machine hoppers

The system has been in operation for some time now and is claimed to be entirely satisfactory to operatives and to manufacturing routine.

The system was designed for the Cliffside Mills by The Textile Shop, Inc., Spartanburg, S. C.

CURRENT TEXTILE TOPICS ....

Talk of the Month

IN GOOD times and bad, in periods of profit and periods of loss, cotton holds dominance among textiles. In recent months, because of the special problems besetting this branch, it might have been supposed that cottons were lagging. But the consumption of the southern staple has gone merrily on. So far as use of cotton goes, the industry has been reflecting progress of recovery. From October through January, as reported by the Bureau of the Census, mill use of the raw material has been substantially above the rate of the two preceding seasons.

Cotton dominating textiles despite special problems

As pointed out by Russell T. Fisher, secretary of the National Association of Cotton Manufacturers, "in recent years we have heard with increasing frequency of the competition between fibers, with much generalizing about the tremendous strides one fiber may have made at the expense of another. Rarely, however, have these generalities present facts or figures . . . Of the four principal fibers, cotton accounts for such a large proportion of the total fiber consumption that there is no close second."

This statistical picture is heartening for the long future, because it cannot be supposed that cotton textiles will forevermore be singled out for special discouragements of extra-industrial origin. The paradox of the textile situation through the stages of readjustment since some experiments of the emergency period have been found unpractical is that cotton, a branch which on the latest figures available supplied over 84 per cent of the country's needs in products of the chief fibers, has been subject to persistent harassment.

It was logically expected that January 6 would be the turning point, whence the industry would gradually resume a normal position in relation to other groups. Here was an industrial division which in 1933 (the latest census) employed nearly 380,000 workers. The largest employer among the industries, it makes a product essential to the masses, especially those suffering from the depression. From both these points of view and from the fact that its prosperity means prosperity for the cotton farmers, opposition of political interests (at any rate, lack of co-operation from that source) seems ridiculously inconsistent.

Yet in disregard of the widespread closing of mills North and South as a by-product of oppressive taxes—and in the face of reopenings in many cases on relief from the burden of the AAA taxes—there came into the picture the threat of new taxes on the mills. The result has been another draggy period in selling of cotton goods, with the success of spring trade dependent upon hand-to-mouth business. The uncertainty through January and the first half of February also led to consideration of curtailment in mill operations.

Peculiar complications were in effect during the past month and more. Slow buying was in process, because of the fear of new taxes on cotton and goods, with a retroactive provision threatened. There was fear of trading under the circumstances. On the other hand, buyers had an incentive to look far ahead and sellers to avoid contracts for distant delivery, because of the general apprehension of inflation from the orgy of spending and taxation.

While the cotton industry up to this month still faced uncertainties which obstructed normal turnover, the general business situation indicated that actual demands for textile merchandise would run into volume, with ultimate advantage to the mills. Hand-to-mouth buying itself seemed in prospect of being in good volume, though that is hardly the desirable way of trade. The Chamber of Commerce of the United States made a significant report on the conditions and outlook at large as of mid-February.

Reporting that business on a general average was the best by the middle of 1935 since 1931 and that by the end of the year the level was the best since 1930, the Chamber stated that "at mid-winter there is an excellent basis for further progress." In connection with this progress, the Chamber found that by January re-employment in private enterprise had reached around 5,500,000 persons. The cotton industry may take pride in having contributed (in the face of discouragements) its share toward such re-employment.

Quick return to buyers of their share of the tens of millions refunded processing taxes to mills was an effective answer to the wild charge by Secretary Wallace that the refund was "probably the greatest legalized steal in American history". The die-hard proponent of agricultural experiment on the AAA lines has shown a vindicative spirit toward the earliest industry to co-operate with the Administration in its recovery program. A normal reaction of resentment toward officials in this spirit led to talk of refusal to pay a retroactive tax if it were enacted.

More to the point was the resolution of 75 leading cotton manufacturers in Washington indicating that many mills would be forced to close under such legislation. It said that "any retroactive legislation seeking in effect to re-impose taxes held to be invalid and which have been or are now being refunded by mills to their customers under these clauses would produce double liability for the amount of those taxes, would inevitably force many mills into bankruptcy with resultant distress for mill workers and mill communities, would prolong market uncertainties hindering this industry's further progress toward recovery, and should be vigorously opposed

as unjust, arbitrary and unconstitutional."

Government investigations have a sardonic way of supporting contentions in the textile trade regarding the damaging effect of such things as processing taxes, and Japanese imports. The statistics last year by the FTC were significant of the cost of tax in unprofitable mill operations. A study of Japanese foreign trade developments by the Tariff Commission brings forth the report that prices of goods sent here "have often been extremely low" and that "the most notable recent increases in Japan's export trade have been in cotton textiles".

New England Mill Situation

AMONG the features of the draggy period for the past month in general, cotton gray goods has been the relatively active and strong tone of fine cloths. In view of the position of fine and fancy goods in the New England cotton mills over many years, the northeastern section of the industry has done relatively well of late. The mills of the district could not evade the repercussions of new tax threats following invalidation of the AAA, but they have had a measure of satisfactory business from the imperative needs of buyers for the immediate merchandising of finished goods.

Recovery of purchasing power has been having its salutary influence upon quality of demand, with favorable influence upon the styled cottons for which New Bedford particularly and New England at large are noted. Such developments as the new building movement have their contingent effect upon textiles. The manufacturers of bedspreads, for instance, see in the prospective establishment of new homes a spreading demand. Such well known lines as the Pepperell, Nashua and Stevens of New England have been styled in especially attractive ways to meet this condition.

From the Rhode Island center of finishing, the recent tidings have been hopeful and even confident of a broad business. A constructive reaction was made to the January decision of the Supreme Court on the AAA. Further optimism was engendered by the prompt action of New England mills toward returning to customers their share of the refunded processing taxes. With a sound technical position both for cloth mills and finishing plants, the basis of prices was considered a sound starting point for a normally rising market, especially if the benefits of tax refunds reached through to the ultimate consumer of cotton merchandise.

Incidental to the return of more than $10,000,000 recovered by New England mills Russell T. Fisher, secretary of the National Association of Cotton Manufacturers, said: "Henry A. Wallace, secretary of agriculture, in a recent radio address, described the return of the taxes to the mills as a 'legalized steal'. He clearly implied that refund of the taxes constituted a gratuity or outright gift to the mills. That his address was in complete disagreement with fact apparently troubled the secretary not one whit, for he has not seen fit to correct the utterly false impression created by his address.

"The refunded tax money is going back to the mills' customers under terms of agreements that have been in effect for several months. As a government official Secretary Wallace should keep himself informed on matters of common knowledge. If this gentleman has his way again with his fantastic ideas on taxation, there probably will be some more idle cotton mills in New England."

Consistent with the mid-February statement of William P. Jacobs, secretary of the South Carolina Cotton Manufacturers' Association, that the nation's textile industry is in danger of displacement by mills in South America and the Orient, the National Association of Cotton Manufacturers had a short time before cited that the threat to the cotton industry was continuing unabated. It had, therefore, protested by resolution against continuance of the present policy of the government which "allows imports from countries where wages are less than one-tenth of what is paid in this country, to the detriment of farmer, employee and employer".

As is well known the cotton mills are continuing the provisions of the NRA code and this is important in Massachusetts because it was the institution of the code principles that led to a modification of the restriction on women's work in the State. The 6:00 o'clock law was suspended under these provisions to give the mills a fair chance in interstate competition. At the time of writing the further suspension of this law was under consideration and it appeared to be settled, with the punitive provision that infringement of the NRA code would cause a revocation of the suspension for the mill involved.

COMMENT ON THE COTTON MARKET

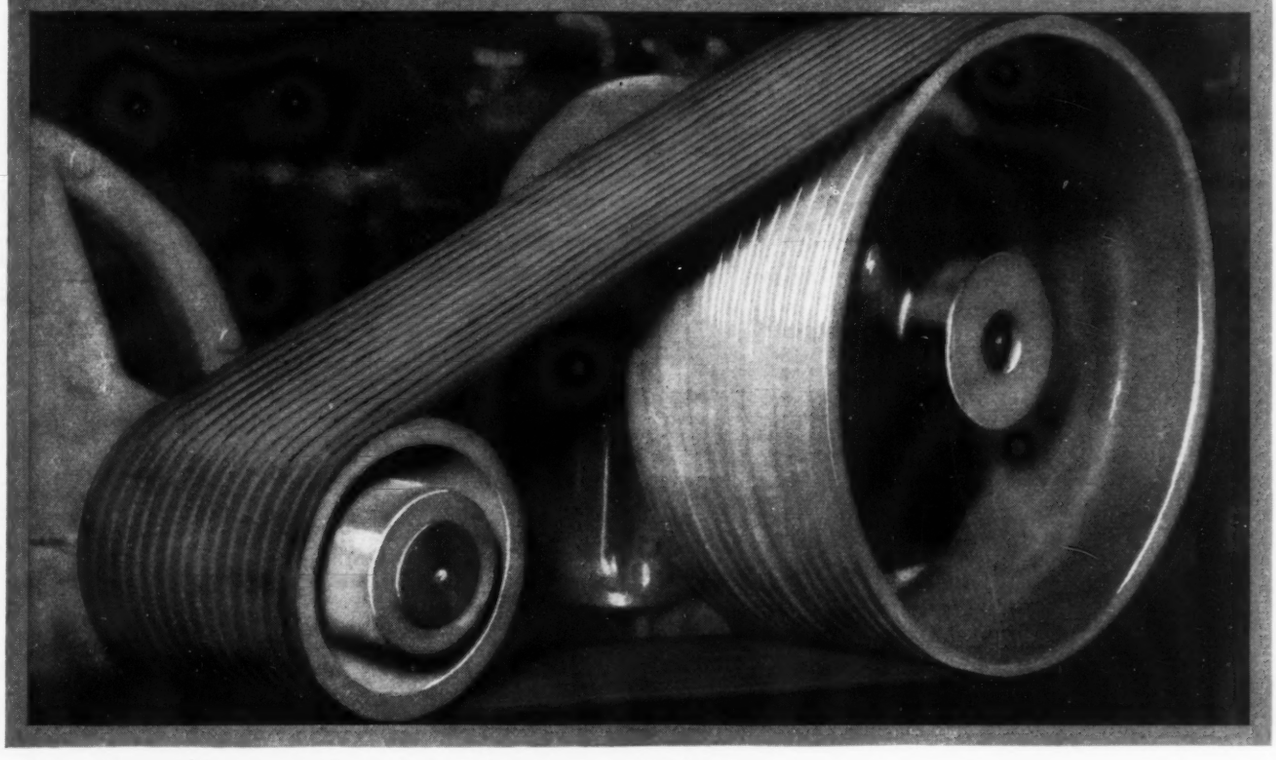
New Orleans, February 17, 1936

DURING the past month the cotton market had to contend with conflicting and confusing influences, viz., pool operations and probable legislative crop control plans. Abnormal cold weather, with much rain to the east of the Mississippi, tended to retard preparations for the next crop. Exports of cotton from the United States of late let up somewhat, but takings of American by spinners of the world kept well ahead of shipments to even date last season. The goods markets were fairly active, with values holding steady, and domestic January consumption figured larger than one year ago. Trading in the contract market, however, was small, with no important change in quotations, as speculation continued inactive for the want of an incentive.

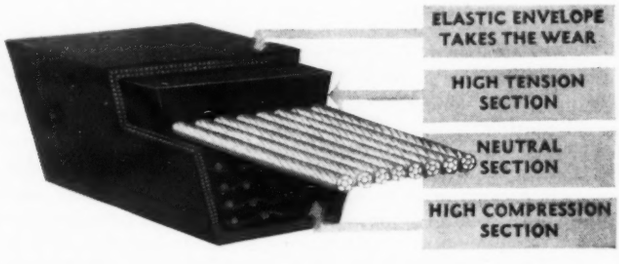
A recent feature, of some importance, was the reported one day's sale of 50,000 bales of pool spots to the trade which when added to subsequent reported sales, made a total of about 120,000 bales of pool cotton disposed of so far. It is understood that bids for pool cotton will continue to be received as long as the price remains satisfactory. Recently the Senate committee favorably reported the Smith Loan Cotton Marketing Act. It is understood that adoption of the Smith bill in its present form would take the disposition of pool cotton, actual and futures, out of the hands of the pool management altogether. The Smith bill is expected to receive consideration in the Senate shortly.

Much cold weather and rain, sleet and snow further retarded business, and production and distribution was impeded to some extent throughout the country, but expansion in trade is anticipated with the coming of spring. Money is cheap and construction work is on the road to recovery, with notable gains already, serving to fill a long felt want, especially as to increasing the demand for material, and labor at better pay. An increase in agricultural activity is in prospect, and an increase in crop acreage is looked

NO LOAFERS



HERE you see why the most efficient belts on high-speed, short center textile machine multiple drives are time-proved Goodyear Emerald Cord V Belts. *Every one carries its full share of the load!* There are no loafers because Goodyear V Belts are *precision-matched* in length and elasticity — because their *absolutely accurate cross-section* insures a firm-fitting grip in the sheaves — because Goodyear's exclusive high-tensile, low-stretch ENDLESS cord construction is unsurpassed in *flex life* and *fatigue resistance.*



That is why Goodyear Emerald Cord V Belts have a higher safety factor, eliminate breakage troubles, last longer and reduce costs. Every one pulls equally — *one or two don't do it all!* Made in five standard cross-sections and lengths up to 360 inches; longer on order. Let the G. T. M. — Goodyear Technical Man — demonstrate this superior belt to you. Write Goodyear, Akron, Ohio, or Los Angeles, California — OR THE NEAREST GOODYEAR MECHANICAL RUBBER GOODS DISTRIBUTOR.

THE GREATEST NAME IN RUBBER

GOODYEAR

EMERALD CORD V BELTS

for. All of this indicates more employment in the mills and on the farm, and naturally points to a further improvement in general business, which is gratifying.

Much severe cold weather and heavy rains further retarded field work, which is reported much behind normal in nearly all areas. Cotton planting does not become general, however, until after April 1, except in the Rio Grande Valley of Texas and along the extreme southern edge of the belt. Accordingly there is yet time to get the land prepared for planting by the usual planting dates, future weather permitting. Private advices from the interior are to effect that there will probably be some increase in the acreage this year, especially to the west of the Mississippi river, where, in some districts, a large increase is looked for.

BRITISH BOARD OF TRADE REPORT FOR JANUARY

Year—	1936	1935	1934
Exports o yarn, pounds	13,000,000	13,000,000	13,000,000
Exports of cloth, yards	167,000,000	187,000,000	179,000,000

CENSUS REPORT

United States— Bales—	This season	Last season
Consumption of lint, January	591,309	550,553
Consumption of lint, 6 months	3,007,197	2,684,647
Mill stocks, January 31st	1,434,992	1,192,065
Stocks in public storage and warehouses, January 31st	7,844,295	8,945,866
Stocks in mills, public storage and warehouses, January 31st	9,279,287	10,137,931
Stocks in mills, public storage and warehouses, December 31st	9,814,268	10,869,206
Active spindles during January	23,323,958	25,155,152
Active spindles during December	23,391,370	25,072,972
Consumption of lint in Cotton Growing States, January	497,360	439,507
In New England States	78,426	89,711
In All Other States	15,523	21,335
In the United States	591,309	550,553
Consumption o lint in Cotton Growing States, 6 months	2,520,581	2,142,130
In New England States	400,265	424,644
In All Other States	86,351	117,873
In the United States	3,007,197	2,684,647

AMERICAN COTTON

Aug. 1 to Feb. 14— Bales—	This season	Last season
In sight (marketed)	10,867,000	7,823,000
Exports from U. S., inc. Canada	4,342,000	3,203,000
Spinners takings, world	7,754,000	6,692,000
Stock at all U. S. ports, Feb. 14th	2,478,000	2,698,000

WORLD'S VISIBLE SUPPLY OF COTTON

Feb. 14th— Bales—	This year	Last year
American	6,617,000	6,739,000
Other kinds	1,596,000	1,989,000
All kinds	8,213,000	8,728,000

There appears to be ample moisture in all parts of the belt for germination, and, except for parts of west and northwest Texas, sub-soil moisture is reported ample at present in all sections of the cotton region. Temperatures were reported sufficiently low to cause mortality among boll weevils in hibernation over northern portions of the western belt, and to kill many weevil over much of the northern portions of the central and eastern belts. Therefore, at this time, the outlook for the next crop, so far as acreage, moisture and weevil are concerned, appears to be favorable. Final adoption of the administration's farm bill, proposed as a substitute for the AAA, is expected shortly, after which farm work in preparation for the new crop will get under way in a more general manner.

What the Southern Mills Are Doing

THE Eagle & Phenix Mills, Columbus, Ga., have recently installed a Super-Sanforizing machine as built by The Textile-Finishing Machinery Company, Providence, R. I.

The Firestone Cotton Mill, Gastonia, N. C., is undertaking improvements in its village, plant, and the general health conditions of its community. The village houses have been repainted and covered and an adequate sewerage system has been installed. The operatives' houses are now equipped with running water and modern plumbing fixtures. In the plant proper, machinery is being re-arranged and a general improvement in the manufacturing processes is being undergone.

The plant of the Opelika Manufacturing Company, Opelika, Ala., has been purchased by M. Snower & Co., Inc., Chicago, Illinois. The plant, which has been a yarn mill, will be changed over into a weaving mill.

The Enderley Corporation, 49 Wall St., New York City, has purchased the mill and properties of the Lowe Mfg. Co., Huntsville, Ala. Edwin Farnham Greene is president.

Citizens of Douglas, Ga., have arranged with manufacturers in Philadelphia, Pa., wherewith a building will be erected to house a new silk hosiery factory. Fifteen machines will be installed and the first unit of the plant will furnish work for 75 people.

Black Hosiery Mill was recently opened in Midland, Ga., and a score of knitting machines are in operation.

Anchor Duck Mills, Rome, Ga., will construct additions to their plant which will house a supply room and storage room.

The Pearl River Corporation, Picayune, Miss., will build a mill to manufacture broadcloth. It will employ 350 people when it is in operation.

Baker-Cammack Corporation, hosiery manufacturers, Burlington, N. C., have leased the Aurora office building and the dyeing and finishing plant. The new knitting units will be moved from Graham, N. C., to Burlington. Renovation of the building, new machinery, and other additions will represent an expansion program involving an investment of $100,000. The plant is expected to be in operation by the first of May.

Edgar Weaving Company, New Bedford, Mass., subsidiary of Colonial Mills, Inc., is planning to move to the South in the near future. It is understood that the plant will be located near Newton, N. C.

Smithfield Manufacturing Company, Smithfield, N. C., will resume operations at an early date.

Thomas W. Buck Hosiery Company, Philadelphia, Pa., has decided to move its plant south. The exact location has not been decided upon.

It is understood that Richard Edge, formerly vice-president of Charles H. Bacon Co., Loudon, Tenn., will establish a knitting mill in Charleston, Tenn. The plant, which will employ about 50 people, will be a complete manufacturing unit. Approximately 50 knitting machines will be installed.

Interwoven Mills, Inc., New Brunswick, N. J., have purchased the plant of Charles H. Bacon Company, Norristown, Tenn., and machinery from the Martinsburg, W. Va., plant of Interwoven, will be installed in it.

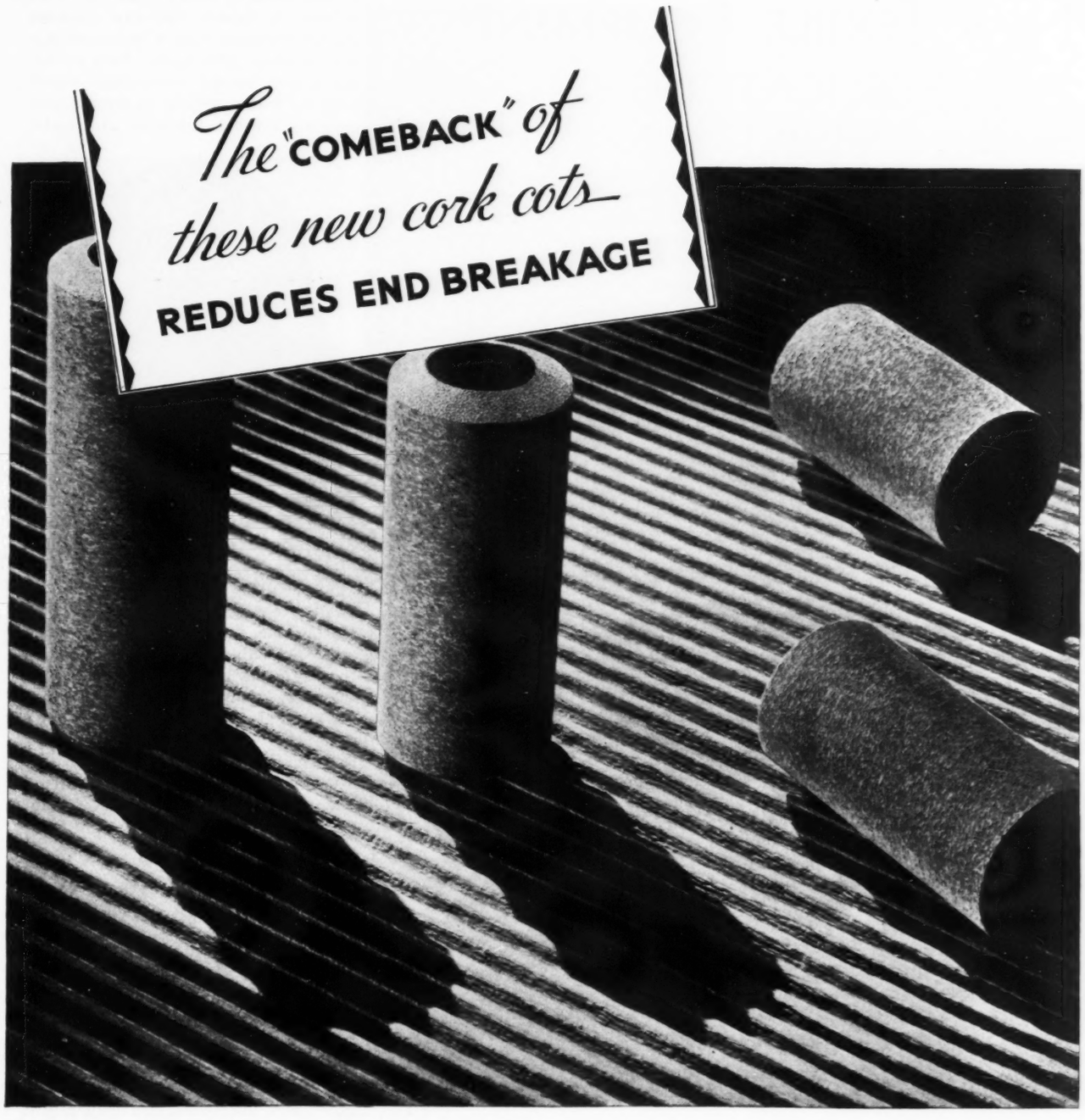
The Chamber of Commerce, Marion, Va., is meeting conditions to bring a large northern mill to its city. The Chamber of Commerce of Roanoke, Va., is undergoing the same routine.

F. C. Nicholson, Chattanooga, Tenn., is planning to operate a hosiery mill in Maiden, N. C. The mill will employ between 60 and 100 people.

Parkway Hosiery Mills, Inc., Asheville, N. C., have been granted a charter. The capital is to be 500 shares at no par value.

Everett's Mill, Rockingham, N. C., has added 50 new knitting machines.

Concord Silk Throwing Company, Concord, N. C., has been granted a charter to perform all operations incident to the manufacture of hosiery.



COMPARATIVE tests show that Armstrong's *Extra Cushion* Cork Cots reduce end breakage 20% or more. These tests have been made in a number of mills under actual spinning conditions and various conditions of temperature and humidity. The reason for this unusual performance is the greater "comeback," the *extra cushion* of this new cot, made possible by Armstrong's special *tubular* method of manufacture which insures uniform cot density from end to end.

Other valuable benefits secured by using Armstrong's *Extra Cushion* Cork Cots include: more satisfactory work even on old frames; improved Monday morning start-up; easier handling in changing numbers; stronger, more uniform yarn. Remember, too, these cots save time and money on assembling costs because they have glue already applied at the factory. You'll find it will pay you to get all the facts about Armstrong's new cots . . . to test them out in your own mill. Write today for data and samples to Armstrong Cork Products Company, Textile Division, 923 Arch Street, Lancaster, Pennsylvania.

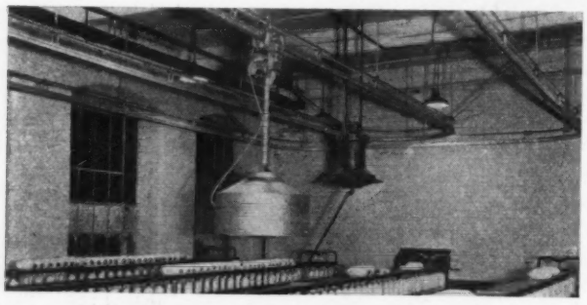
ARMSTRONG'S *Extra cushion* SEAMLESS CORK COTS

FOR SPINNING AND CARD ROOM ROLLS

New Textile Equipment and Publications . . .

New Automatic Overhead Cleaner

The American MonoRail Company, 13107 Athens Avenue, Cleveland, Ohio, have announced the development of a new automatic overhead cleaner for textile application over spinning frames, creels, warpers, etc. This company, for many years manufacturers of the MonoRail system, began a study of the requirements for textile cleaning equipment about two years ago and in conjunction with the Bayley Blower Company of Milwaukee, Wis., developed a blower unit which is used in the new cleaning system.



Left, Fig. 1, an installation of the new overhead cleaner . .

As shown in the accompanying illustrations, the blower is suspended from a MonoTractor, and travels at speeds as high as 200 feet per minute over the machines to be cleaned. This speed, it is pointed out, is attainable because of the sturdy construction of the standard rail and conductor system and to the swivel ball-bearing trolleys that were designed to take heavy loads at high speeds.

Fig. 1 shows an installation of the cleaner in a southern mill, where 20 long draft frames are covered. It will be noted that the rail is located above the humidifiers, while the cleaner itself is below the humidifiers and directly over the spinning frames.

Fig. 2 shows a close-up of the cleaner and MonoTractor. This shows the 1/10th-h.p. motor used driving the rubber tire which is held against the bottom of the rail; also the heavy bus bars mounted above the rail and the collector shoes which bring power to the motors. This is the same type of drive that is successfully used in handling heavy loads on the MonoRail system, it is explained.

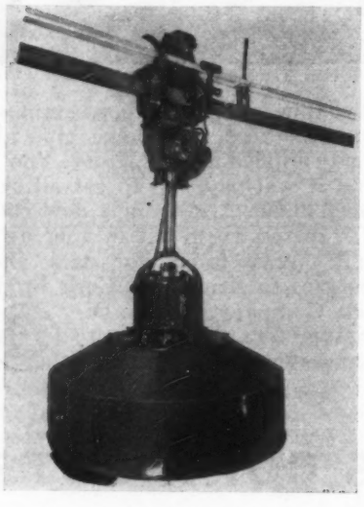


Fig. 2. Close-up of cleaner and MonoTractor . . .

Fig. 3 shows the cleaner assembled with the motor mounted on the top of the housing; this construction, it is explained, is used to raise the center of gravity and reduce swinging at the curves. This illustration also shows one of the two end intakes as well as a small bottom air intake. All these intakes are fitted with shutters so that the volume of air discharged as well as the direction of the currents can be regulated.

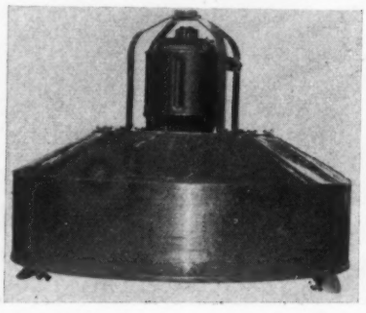


Fig. 3. The cleaner with motor on top . . . . .

Fig. 4 is a "knocked down" view of this cleaner. A heavy plate carries a motor to which is attached a Bayley self-cleaning impeller. This unit is enclosed by a specially designed housing having air intakes at opposite sides directly over the top of the creel, and also a small round intake at the bottom. Entering the center of the impeller from the bottom, the air is forced to the outside of the housing from whence it leaves the two crescent shaped openings with a revolving motion of about 1200 r.p.m. This revolving action causes a "cyclonic swirl" over the frame, setting up strong cross currents through the creel and under the roll stand, cleaning all parts of the machine thoroughly, it is explained.

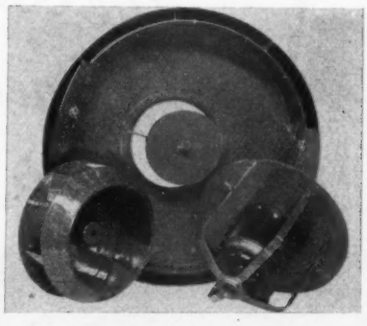


Fig. 4. A "knocked-down" view of the cleaner . . .

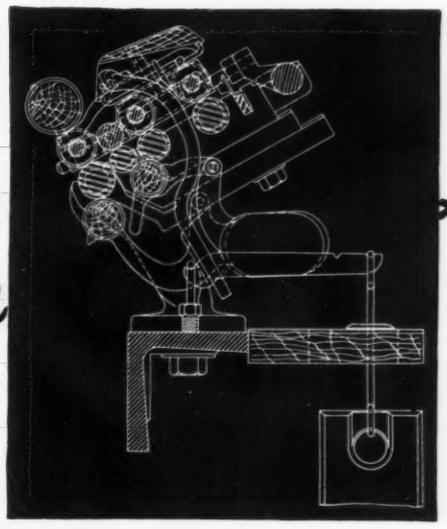
The company points out that since the air at the floor level is not disturbed, this unit does not tend to blow lint under the machine and onto the weight levers. It is explained that placing the intake openings over the creel prevents a strong blast of air from injuring the roving on the top of the creel. However, two small tubes are located at the end to deliver a cross current of air at this point to clean thoroughly without injury.

Curran S. Easley, Box 755, Greenville, S. C., is southern district manager for The American MonoRail Company.

Everlastic Textile Roll Covering

Everlastic, Inc., 141 Milk St., Boston, Mass., have issued a circular descriptive of "Everlastic", a new type of roll covering material for spinning and other textile rolls. This new roll has for its basic ingredient the synthetic rubber compound "Durene"; and the manufacturers point out that it is oilproof and unaffected by temperature changes, with uniform density, and may be ground, buffed, and readily cemented to the roll arbor. The resiliency of the material is regulated during the compounding of the material, it is pointed out, so that, it is explained, removal of considerable of the top roll weight is possible. The material is available in 33-inch hose lengths, for mills that have the necessary mounting, grinding and buffing apparatus; or the covering may be done at a number of roller shops listed in the booklet. Textile salesmen of The Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc., and of the United States Rubber Products, Inc., the booklet states, can furnish full information on this new product.

What Price Long Draft?



Perhaps you've heard of the boy who wanted to eliminate school; so he played hooky and hid in the closet at home all day long. By the end of the day he decided he'd paid too big a price for "elimination."

Spinners of cotton yarns are interested in long draft spinning because they want to eliminate operations, time and labor. However, in selecting long draft equipment, they should make sure that, in eliminating, they do not sacrifice the simplicity, cleanliness and low upkeep that are characteristic of regular type spinning frames. They don't want to keep on paying for elimination indefinitely in the form of increased upkeep.

H & B Four Roller Long Draft Spinning offers elimination of operations, time and labor WITHOUT PENALTIES, because, as regards simplicity, it more nearly approaches regular spinning than any other type of long draft equipment.

At the same time it is highly efficient in performing its task. It gives free play to the fibres, so that the longer fibres naturally work toward the core of the yarn, where they make for greater strength, while the shorter fibres work outward. Roller No. 2 performs the same function as do belts in other systems,—it prevents sagging and controls the shorter fibres. At the same time fly (and other waste) has an opportunity to fall clear. It does not bunch up and is not carried into the yarn.

The ultimate result is a strength, evenness and smoothness of product not ordinarily associated with long draft spinning.

Specify H & B Four Roller Long Draft and thus maintain quality and obtain lower costs WITHOUT PENALTIES.

H & B AMERICAN MACHINE COMPANY
Cotton Preparatory and Spinning Machinery
PAWTUCKET, R. I.

BOSTON OFFICE, 161 Devonshire St.; ATLANTA OFFICE, 815 Citizens and Southern National Bank Bldg.

H&B

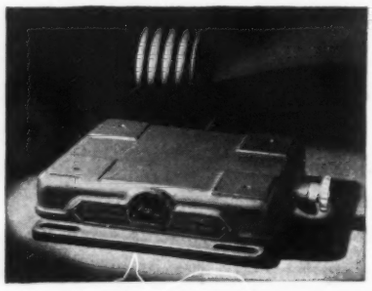
FOUR ROLLER LONG DRAFT SYSTEM

Booklet on No. 50 Universal Winder

Universal Winding Company, 95 South St., Boston, Mass., have issued a new pamphlet descriptive of the No. 50 Leesona winder for sale yarn. Photographs of the various types of packages which may be made on this machine are shown on the cover, and included in the contents is information covering the chief features of the machine, and the various attachments which may be applied for winding different materials, from different types of supply, into different types and sizes of packages.

Straitline Motor Base

Allis-Chalmers Manufacturing Company, Milwaukee, Wis., have brought out a new "Straitline" automatic motor base which provides a convenient place



Automatic motor base

from which to operate the vari-pitch sheave. This new base maintains a uniform tension by eliminating guess work; the dial indicator shows the tension of the v-belts. The motor is supported by four ball bearings, totally enclosed and lubricated for the entire life of the unit, it is stated. The indicator allows the operator to maintain the correct belt tension; the handwheel on the base controls the speed and simultaneously moves the motor a sufficient amount to compensate for the change in centers between shafts.

Second Edition of Rayon Handbook

The Rayon Publishing Corporation, 303 Fifth Avenue, New York City, have published the second, enlarged edition of their *Rayon and Synthetic Yarn Handbook*, by E. W. K. Schwarz and Herbert R. Mauersberger. The book, attractively bound in artificial leather, sells for $3.75 in the United States and Canada, and $4.50 in foreign countries.

Dr. Schwarz is a textile chemist and Mr. Mauersberger is a textile consultant and teacher of textiles at Columbia University. Both men are on the technical staff of *Rayon & Melliand Textile Monthly*.

The handbook carries 230 illustrations, tables, and charts. Besides going into the historical background of the rayon industry, the contents cover raw materials and their preparation; winding, soaking, and throwing; warping and warp sizing; weaving; finishing and special processes; physical and chemical testing; laundering; and dyeing of the synthetic yarns.

New Catalogs

Bausch & Lomb Optical Company, Rochester, N. Y., manufacturers of various lense instruments, have recently published two new catalogs dealing with microscopes and microscopic illuminators. Polarizing microscopes are explained and their adaption to specific cases are taken up in the first catalog. The catalog also indicates which polarizing microscope should be used in the several fields, and gives a complete line of microscopic accessories. The second catalog covers microscope illuminators. Both are illustrated.

Comparative Textile Chart

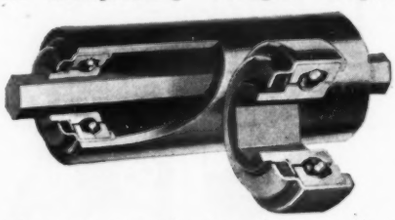
Scheurer & Company, 72 Leonard St., New York City, textile brokers and consultants, are distributing the 1935 edition of their comparative textile chart. The chart, which is the only one of its kind issued, includes a price history of 64x60, 38½-inch, 5.35, standard cotton print cloth and covers the years 1926 to 1935 inclusive. It records the highest and lowest average monthly mill margins, as well as the cloth and cotton price range during these years. The margins represent what mills receive for the services of manufacturing, financing, and selling. A record of high and low prices of a wide range of staple cotton fabrics is also included. Since the tabulations exclude the processing tax, the results shown are of current value. A new feature is a record of monthly average mill margins of two combed yarn constructions, a broadcloth and a lawn which covers the past six years. This material was gathered with the assistance of the Department of Agriculture. The chart is well printed and is suitable for framing.

Rayon Book

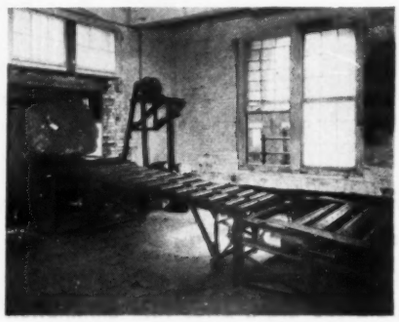
A treatise on rayon staple fiber, its production, manufacture, and uses is published in book form by Dr. H. G. Bodenbender of Germany. It contains 534 pages with 212 illustrations and tables. The author included information on rayon that is desired by producers, chemists, engineers, technicians, machine makers, raw material suppliers, spinners, doublers, weavers, knitters, sizers, bleachers, dyers, printers, finishers, and merchants. The book contains a historical introduction, chapters dealing with the process of production, spinning, and the finishing of knitted fabrics. Testing and identification are dealt with also. It is published by Chemisch-technischer Verlag Dr. Bodenbender, Berlin-Steglitz, Feuerbachstrasse 56. The book is cloth bound, written in German and sells for 13.50 RM (approximately $4.00).

Conveyor Rollers with Hexagon-Shaped Axles

Mathews Conveyer Company, Ellwood City, Pa., have announced an addition to their "knurled-keylock" line of roller conveyers in the form of rollers incorporating "hexagon" shaped



Above, sectional view of new roller; below, an installation view . . .



axles, available in all present sizes as well as several intermediate sizes not heretofore available. In the new line, seamless steel tubing, hardened steel bearing parts, and solid steel inner and outer ball races predominate. Ball bearing rollers in lengths to suit, are available in diameters of from 1 inch to 7⅝ inches, for load capacities up to 8,000 pounds.

Unit Heater for Mills

Modine Manufacturing Company, 175 Racine Street, Racine, Wis., have developed a unit heater especially designed for textile plants. This heater is made to operate satisfactorily under severe lint conditions and eliminates the practice of blowing out.

Control for Make-Up Water

Morehead Manufacturing Company Detroit, Michigan, manufacturers of the Morehead back-to-boiler system, announce the completion of an automatic control for make-up water for use in Morehead systems. The apparatus automatically provides make-up water as the boiler demands it. It is simple in design and is easily installed in connection with any back-to-boiler system.

Lively

SPINNA CALF

HAS NATURAL RESILIENCY . . . SO IT DRAFTS MORE SMOOTHLY AND KEEPS ITS CUSHION LONGER!

Calfskin springs quickly back into shape — and resists injury from hard ends, temperature changes, shut downs and other causes of roller break-down and poor spinning.

"Lively" Spinna Calf is also *self-adjustable* — it's so resilient it can adapt itself to *any* count of yarn.

Avoid Monday morning troubles, frequent re-buffing, lapping-up, and get longer-lasting good cushion (18 months is not uncommon) and low end breakage by specifying "lively" Spinna Calf.

CANNON

One of America's leaders who specifies Spinna Calf for high-quality spinning.

Use calf because it's "lively"— A. C. LAWRENCE LEATHER CO. SPINNA CALF BOSTON *Choose Spinna because it's Lawrence*

A. C. LAWRENCE LEATHER COMPANY

2449

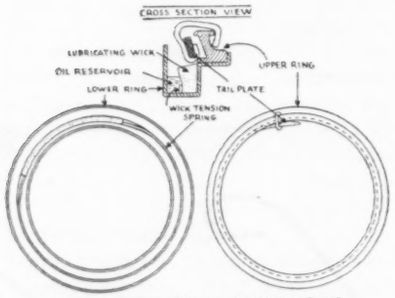
SPECIALISTS IN TEXTILE LEATHERS

BOSTON, MASS. PEABODY, MASS. GREENVILLE, S. C.

Self Lubricating Twisting Ring

What is said to be something entirely new in a twisting ring, concerning lubricating features, has been placed on the market by The Stehedco Development Division of the Steel Heddle Manufacturing Company, Atlanta, Georgia.

As will be noted from the illustration, the lower section of the ring is grooved and in this groove is a wick. Oil is placed in the groove-reservoir. When the upper section of the ring which carries the tail plate is clamped down into the lower half, forming then a one piece ring, the film of oil inside the tail plate never touches the wick and yet lubrication takes place without oil getting onto the yarn.



SELF LUBRICATING TWISTING RING
made by
STEHEDCO DEVELOPMENT DIVISION
of the
STEEL HEDDLE MFG. CO.

Booklet on Arctic Syntex

Colgate-Palmolive-Peet Company, Jersey City, N. J., have issued a 57-page booklet describing the various operations in which Arctic Syntex, a new fatty acid derivative, can be used. It contains useful diagrams and the history of the development of this compound.

Handbook On Sulphonated Oils

The Sulphonated Oil Manufacturers Association, 55 W. 42nd Street, New York, have published, at the request of its members, a handbook intended to clarify and standardize practices which heretofore have been the basis of confusion and expense to the customers of this industry. The handbook is distributed by the association in response to requests furnished by its members. The books are numbered and a record of distribution is maintained in order that changes as well as supplementary issues of material may be mailed to holders from time to time.

Toncan Iron for Air Conditioning Equipment

The Republic Steel Corporation, Massillon, Ohio, have published a pamphlet showing the advantages of corrosion-resisting *Toncan Iron* for air conditioning equipment. The illustrated pages tell of the protective ability of this product.

Products by Carborundum

The Carborundum Company, Niagara Falls, N. Y., have developed a new cloth for the take-up rolls on looms called "Texalox". It is a strong yet flexible cloth backing coated uniformly with granular particles. Over this coating is annealed a light covering of metal which seals the surface and covers any sharp protruding points. "Texalox" is produced in various degrees of coarseness suitable for goods from fine silks and rayons to coarse cotton cloths. The company has also produced an abrasive for card grinding. This "Aloxite" is a hard, sharp, tough substance. It is claimed that the card clothing base does not destroy its elasticity.

New 250-Watt Mercury-Vapor Lamp Announced by General Electric

Development of a new high intensity mercury-vapor lamp—rated at 250-watts, of much smaller dimensions than its 400-watt companion lamp, equipped with a tubular bulb and a standard screw base socket—was recently announced by the General Electric Vapor Lamp Company, Hoboken, N. J., and the incandescent lamp department at Nela Park, Cleveland, Ohio. The new lamp is recommended for applications which do not permit use of the standard 400-watt high intensity mercury-vapor lamp.

The 250-watt mercury lamp has an efficiency of 25-30 lumens per watt. It is the universal burning type, functioning efficiently in the vertical, horizontal or angular position and has an operating life rating of 2,000 hours. It produces as much light as is delivered by 425 watts in incandescent lamps.

The new lamp may be used alone or in combination with incandescent lamps, depending upon the requirements of the task at hand. Used alone, it provides high efficiency lighting for use in low bays or other locations where the standard 400-watt high intensity lamp cannot be economically utilized. The mercury-vapor light, however, having the characteristic mercury-vapor line spectrum, gives objects a definitely blue-white cast. Colors in which red is a component are somewhat altered in appearance, while yellows and greens are slightly modified.

The smaller size, lesser wattage and color characteristics of the new lamp make it particularly adaptable to combination with incandescent lamps, the continuous spectrum of which is rich in red, it is explained. The resultant light of this intermingling of all rays is a synthetic white, a cool light which mixes well with natural daylight, and which is held to be highly desirable for factory, office, school and similar applications. However, where accurate color discrimination of material is of prime importance, as in clothing stores, these combinations are at present not being recommended.

The new lamp, along with other recent extensions in the number of types of mercury-vapor lighting units now available, increases considerably the means available for correlating the visual characteristics of artificial light to the specific seeing task to be lighted.

A number of newly designed reflectors of the single and combination type, specifically designed for the 250-watt mercury lamp, are ready for the market.

Solution for Correcting Rusty Reeds

Textile Specialty Company, Greensboro, N. C., builders of loom reeds, have announced the development of a practical and economical solution to the problem of rusty reeds. It is in the form of a solution, sold by the gallon, and is said to be harmless to iron and steel. This solution was developed by experienced mill men and is claimed to eliminate the expense and annoyance of rusted out and broken dent wires in reeds.

Catalog on "Save-Lite"

The Sherwin-Williams Company, Cleveland, Ohio, have published a booklet on *Save-Lite* which explains "what a paint should be, what paint does to light, and how to utilize paint to the best of advantages in the mills." It is a 34-page illustrated form and also carries an explanation of the company's service to its customers.

Pamphlet by MonoRail

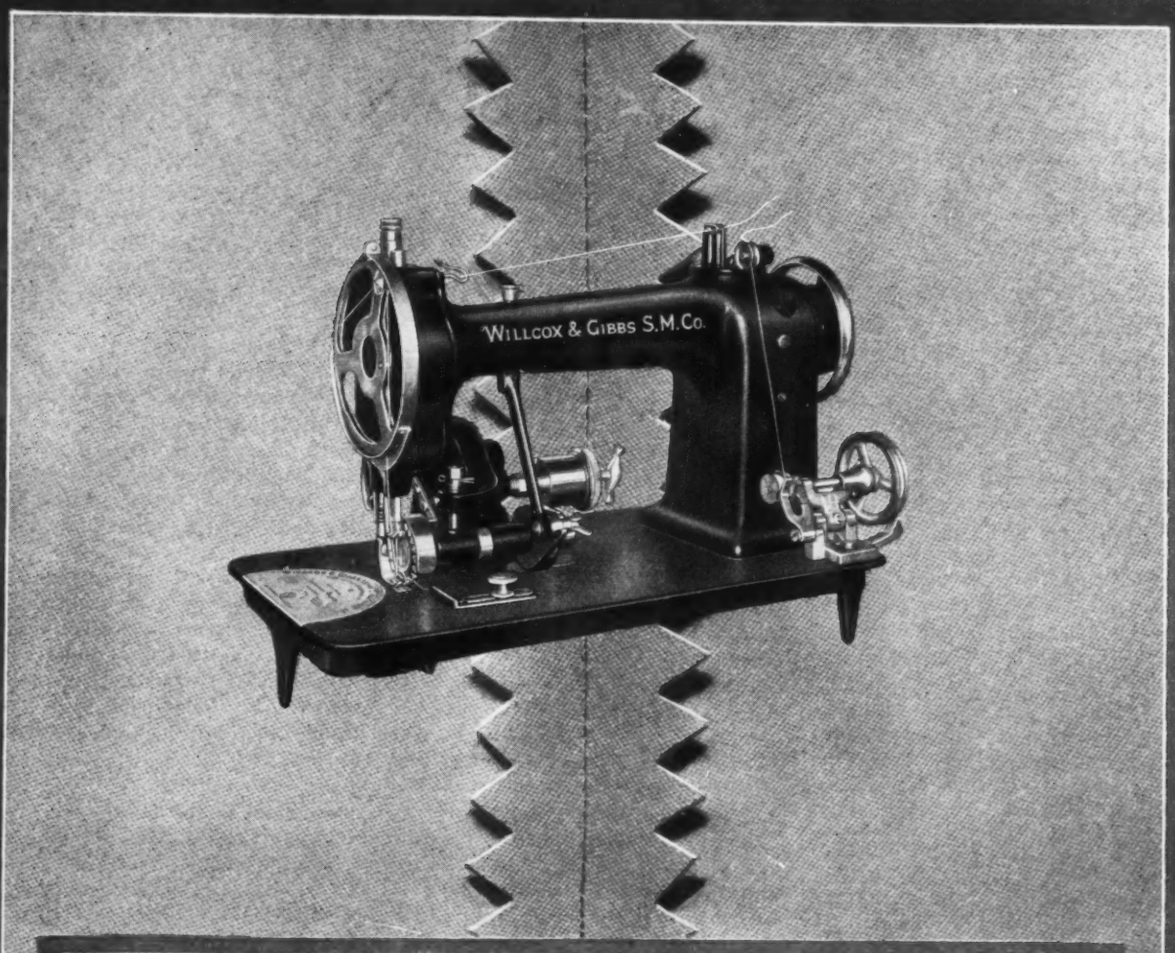
The American MonoRail Company, 13107 Athens Avenue, Cleveland, Ohio, have released an illustrated pamphlet concerning the electric drives for crane hoists and carrier units.

Booklet on Chain Drives

The Ramsey Chain Company, Inc., Albany, N. Y., have put out a booklet entitled "The A-B-C of Silent Chain Drives". The booklet goes into transmission problems and describes how the Ramsey chains work.

"The Texaco Star" Textile Number

The Texaco Star, publication of The Texas Company, 135 East 42nd St., New York City, came out with an interesting textile number recently. It carries stories on cotton, oil and cotton, and many other features that the mill man is interested in. The cover is printed on cotton cloth and the inside pages on 50 per cent cotton rag paper.



Pinked seam shown in background has been enlarged 2½ times.

PINKED SEAMS

A MODERN seam — the modern way — for modern garments. Efficient, durable and economical. Neater because it lays flat without bulk. The pinked seam is secured in one operation with the Willcox & Gibbs Lockstitch, Pinking and Seaming Machine, Types No. 26 and No. 27. The latter type is equipped with a hand attachment, at slight extra cost, permitting instant change to straight sewing. Let us demonstrate the cost saving possibilities of this machine on your garments.

WILLCOX & GIBBS SEWING MACHINE COMPANY

HOME OFFICE 656-658 BROADWAY - - - NEW YORK, N. Y.

MANUFACTURERS AND DISTRIBUTORS OF WILLCOX & GIBBS AND METROPOLITAN SEWING MACHINES

EUROPEAN REPRESENTATIVES

WILLCOX & GIBBS SEWING MACHINE CO., LTD., 20 FORE STREET, LONDON, E. C. 2, ENGLAND

Engineering Manual by Fafnir

The Fafnir Bearing Company, New Britain, Conn., have a new engineering manual just off the press, No. 35. It it a valuable instrument for engineers engaged in the selection of maintenance of bearings. Engineers meeting these requirements may obtain a copy of the manual from this company.

Taylor "Thermospeed"

The Taylor Instrument Companies, Rochester, N. Y., have perfected a separable well tube system known as "Thermospeed". It is claimed that the response due to this new construction is approximately six times faster than the average separable well tube system now in service, and almost twice as fast as separable well thermocouples. Previous to the invention of this device, a separable well was required on many temperature measurements and control application to protect the temperature-sensitive bulb from corrosion or erosion and to give it adequate support. The extra metal thickness caused a substantial delay or lag in transmitting a change in the temperature to the bulb.

New Book Out

The Collapse of Cotton Tenancy by Charles S. Johnson, Edwin R. Embree, and W. W. Alexander has been released by the University of North Carolina Press, Chapel Hill, N. C. The authors have presented their findings and conclusions regarding cotton tenancy in the southern cotton belt. They have assembled many startling truths and have described the region itself. It brings out the fact that under the AAA program, the government assumed many risks of the land-owners, throwing them on the tenant. In the latter part of the book the authors suggest a "way out" and attempts to show wherein it is both necessary and feasible. The book sells for $1.00 in this country. The English press for the book is the Oxford University Press.

Catálog on Diamond Fibre Hollow Ware

Continental Djamond Fibre Company, Newark, Del., manufacturers of "Diamond Fibre" hollow ware for all industries, have just issued a comprehensive catalog of their products. The book contains 32 pages, is well illustrated, and gives full information on the company's line. Fiber trucks, conditioning trucks, fiber boxes, fiber roving cans and barrels are among the products of direct interest to textile mills which are treated in the book; as well as the company's complete line of truck casters.

TIMELY NEWS ITEMS WITH A TEXTILE SLANT . . . .

Graham Joins Sales Department of Terrell

Irwin P. Graham has recently become associated with The Terrell Machine Company, Charlotte, N. C., in their sales department. He will be in charge of the sales for Thermoid mechanical rubber goods in the two Carolinas, his headquarters will be in Charlotte.

Mr. Graham

Mr. Graham was born in Charlotte, N. C., and attended Davidson College and Washington & Lee University where he graduated in 1910. He was actively interested in sports and coached football and baseball in several southern schools up until 1916, when he accepted a position with The Erwin Cotton Mills company.

When the United States entered the war, Mr. Graham was commissioned a captain in the artillery and saw active duty in France and in the Army of Occulation in Germany after the war.

In 1919 he rejoined the organization of The Erwin Cotton Mills Company and remained with them until his resignation last fall.

Alemite Catalog

Alemite, a division of Stewart-Warner Corporation, 1862 Diversey Parkway, Chicago, have issued a new 32-page catalog of equipment produced by Alemite for industrial lubrication. It contains complete information and prices of powerguns, hand guns, fittings, automatic oil and grease cups, pressure-proof hose, etc. The catalog is fully illustrated.

Industrial Rayon Corp. Erects Additional Plant

Industrial Rayon Corp., Cleveland, Ohio, recently announced plans for a two-million dollar building program in expansion of the company's present facilities. The first unit will be erected near the main plant, and is to be equipped with facilities for producing eight million pounds a year of bleached coned yarn, under a new process developed by Hayden B. Kline, vice-president, which it is believed will permit in one operation the spinning, chemical treatment and finishing of the yarn twisted and ready for coning.

A proposed second unit will be utilized for augmenting the sale and distribution of rayon yarn in package form to the weaving and other textile mills.

Union Special Makes Organization Changes

The Union Special Machine Company, Chicago, Illinois, have made several changes in their sales organization in order to better service facilities and to have closer contact with their customers.

J. M. Keasler has been made city representative at Philadelphia along with C. R. Spencer who has been located at Pottsville, Pa. John Biddle has returned to factory headquarters and C. H. Verdeur has been transferred from the Connecticut territory to New York City.

New Plant in the South

The Stehedco Development Company, a division of the Steel Heddle Manufacturing Company, Philadelphia, Pa., is now located in Atlanta, Georgia, and will concentrate its manufacturing on the development of twister rings and similar items. Ralph Ragan is in charge of the new company and H. Raiford Gaffney has charge of sales.

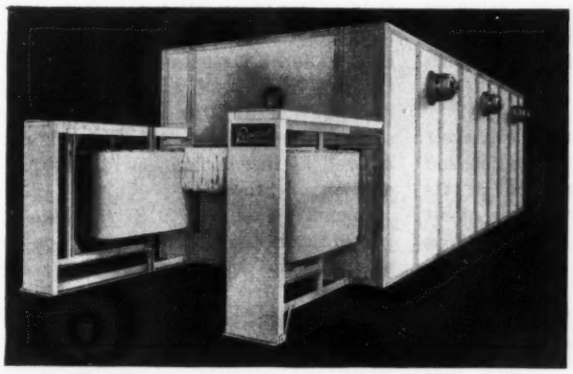
Atlanta Office of Steel Heddle Moves

The Atlanta office of the Steel Heddle Mfg. Co., of Philadelphia, has been removed from the Forsyth Building, to 268 McDonough Boulevard, Atlanta, at the same address as the Stehedco Development Division, which is operated as a division of the parent company. H. Raiford Gaffney is district manager of the company, with headquarters in Atlanta, representing the Stehedco loom harness line as for the past year in Georgia, Alabama, Mississippi and Louisiana.

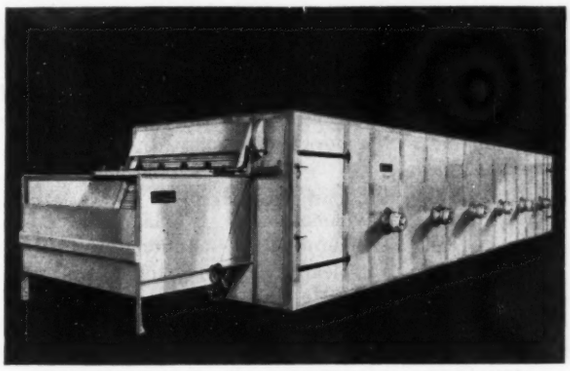
Reissue Patent Granted

Fidelity Machine Company, 3908 Frankford Avenue, Philadelphia, Penn., have been granted reissue Patent No. 19,827, which covers improvements in their wrap stripe ribber known as the multi-design machine. With this reissue there is now a total of seven patents covering fabric and mechanism on this machine.

A New PROCTOR DRYER for *Nothing*



The New Proctor Automatic Yarn Dryer with Traveling Skein Protector—Better quality, lower cost, drying yarn.



The Proctor Super Dryer—with an amazing record of savings in drying cotton, wool and other stock.

No, this isn't an advertising catch-phrase or the announcement of a contest . . . it's a straightforward business proposition.

A number of manufacturers who felt the need of replacing inefficient and obsolete drying equipment with modern Proctor Dryers but lacked the necessary funds to do so, put the problem up to us.

We were able to work out a satisfactory finance plan that enabled them to install up-to-date Proctor machinery at once. In most cases, the savings realized from these new dryers equalled, and often exceeded, the monthly payments. This actually amounted to getting a new Proctor Dryer for nothing.

Write now and tell us something about your drying requirements, your present output, and whatever facts you can about your present installation. It may be possible that we can work up a plan by which you, too, can obtain "a new Proctor Dryer for nothing".

PROCTOR & SCHWARTZ ◆ INC ◆ PHILADELPHIA

Stewart Iron Works Celebrate Their Golden Anniversary

The Stewart Iron Works Company, Cincinnati, Ohio, leading manufacturers of steel picket fencing, wire mesh partitions, window guards, metal folding chairs and other steel specialties, are this year celebrating the 50th anniversary of the establishment of their organization. The company was founded in 1886, by R. C. Stewart and his brother, W. A. Stewart, now deceased, and a small plant was established in Wichita, Kan. In 1894, on an enlarged scale, the company moved to Cincinnati, Ohio, and three years later acquired larger quarters; then in 1903, again requiring larger facilities, the company selected a factory site in Covington, Ky., and erected a new plant that now is one of the largest of its kind in the world. The present plant, with 350,000 square feet of floor space, is equipped with modern machinery, jigs and dies for fabrication bar, shape and plate work of all sizes —cold working, forging, welding, etc.

R. C. Stewart

R. C. Stewart, one of the founders, is still president of the company. His son, Robert S. Stewart, is vice-president, and his grandson, S. M. Stewart, is assistant secretary. W. S. Rich is secretary and C. A. Aplin treasurer.

Ciba Moves

Ciba Company, Incorporated, have announced the establishment of their new southern office and warehouse at 1517-23 Hutchison Avenue, Charlotte, N. C. Samuel L. Hayes, formerly representative of the company in Greenville, S. C., is the southern manager.

Worth Street Rules

The Association of Cotton Textile Merchants of New York have recently published a 39-page booklet called "Worth Street Rules 1936". This booklet was approved by such organizations as The Cotton-Textile Institute, Inc., The American Cotton Manufacturers Association, and the Textile Brokers Association. It covers the passing of title for goods, collection and credit, cancellations, specifications, storage, insurance, arbitration, and fees for same. It also lists the arbitrators in controversies for the various classes of dealers, and gives the rules that shall govern these cases. It further lists standards for goods in different a class such as fancies and print cloths. There is also a chapter giving the definitions and trade customs as applied to the converting trade. Other pertinent data are given throughout the booklet which are quite instructive. The price is 50 cents and may be had upon order from the printer, John G. Mohair, 22 Reade Street, New York City.

Ford Plans Exhibit

Edsel Ford (left) president of the Ford Motor Company, and Nathan Adams, chairman of the board of directors of the Texas Centennial Exposition, are showing in the accompanying illustration examining the 100-year-old plantation cotton spinning machine which will form part of the Ford exhibit at the exposition which takes place in Dallas, Texas, from June 6 to November 29, 1936.

The Ford Motor Company will erect its own exhibit building at Dallas and will show processes as used at its plant in Dearborn, Michigan. About 40,000 square feet will be devoted to exhibits.

Among the chief features of the displays will be the raw materials used in the manufacture of Ford, Lincoln, and Lincoln-Zephyr cars that come from the Southwest. These products include cotton, mohair, wool, corn, cattle, soy beans, resin and rice.

George O'Brien Transferred

George C. O'Brien, who has been in the naval stores department of the Hercules Powder Company, Wilmington, Del., has been transferred to that company's office in New York. Paul Mayfield, manager of Hercules Powder Company's naval stores department, Chicago, will handle Mr. O'Brien's former duties in Wilmington.

Terrell Represents Durant

The Terrell Machine Company, Charlotte, N. C., has been appointed representative for the Durant Manufacturing Company, Milwaukee, Wis., manufacturers of loom pick clocks and other types of counters.

Modine Appoints Gaskell

Modine Manufacturing Company, Racine, Wis., have announced the appointment of Charles J. Gaskell as representative in Memphis, Tenn. Mr. Gaskell is a graduate of the University of Wisconsin Engineering School. Seven years as plant engineer for the Bemis Cotton Mill at Bemis, Tenn., five years as superintendent of construction with the Johns-Manville Company in St. Louis, and twelve years as a sales engineer in Memphis, have given him an excellent background in industrial heating. As Memphis representative for Modine (manufacturers of unit heaters, copper radiation, unit coolers, and heat transfer equipment) will cover the western part of Tennessee, the northern part of Mississippi and the eastern part of Arkansas. His office is in the Falls Building in Memphis.

New Dyestuffs

Two new dyestuffs to be known as "Acele" Red RP Powder and "Luxol" Fast Black S (Patented) have just been announced by the dyestuffs division of E. I. du Pont de Nemours & Company.

"Acele" Red RP Powder is a new addition to the companys' line of acetate fiber dyes which produces medium shades of red on all types of acetate fiber materials. It is said to exhibit good general fastness and good penetrating and application properties. "Acele" Red RP Powder will find use alone for medium to full shades of red as well as in combination for the production of browns.

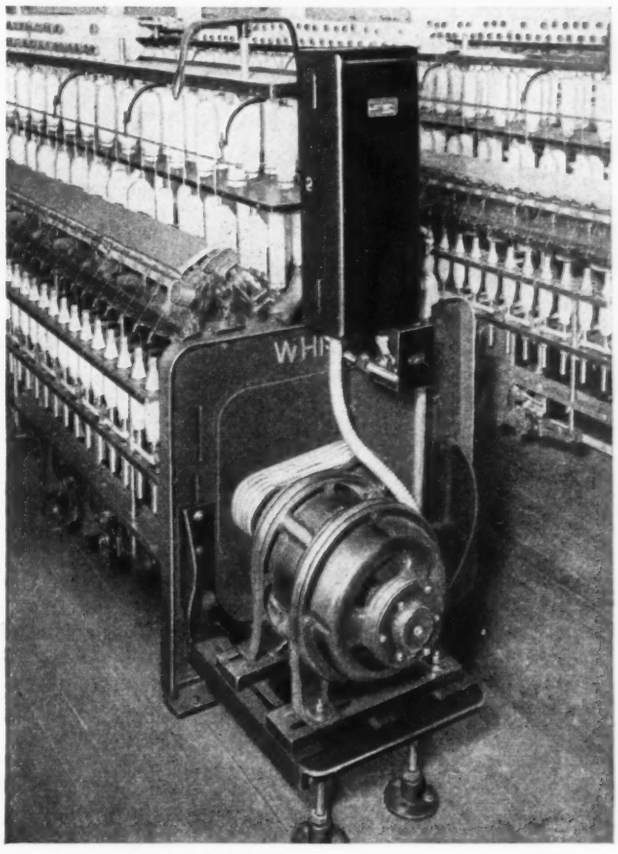
"Luxol" Fast Black S (Patented), an addition to the company's line of spirit soluble colors, is a black of very good solubility which will not bronze even in heavy shades. In shade, it is somewhat redder than "Luxol" Fast Black L (Patented). Like the rest of this class of colors, "Luxol" Fast Black S (Patented) will be used widely in all types of spirit printing inks as well as for coloring leather, wood and pyroxylin or tinfoil lacquers.

"Acele" and "Luxol" are registered trade-marks of E. I. du Pont de Nemours & Company, Inc.

Holland Promoted

Announcement is made by E. F. Houghton & Co., manufacturers of oils and leathers, Philadelphia, Pa., that L. D. Holland, formerly sales manager of the western division, has been made manager of research development with headquarters in the general offices, Philadelphia. A. A. Miller, formerly head of the Cincinnati, Ohio, office, has been promoted to the position of western sales manager, with headquarters in San Francisco, Calif.

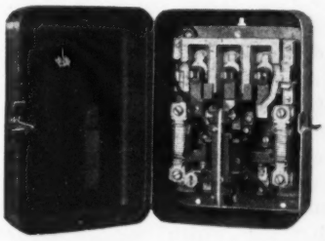
DO YOUR MAGNETIC SWITCHES CAUSE YOU UNNECESSARY EXPENSE?



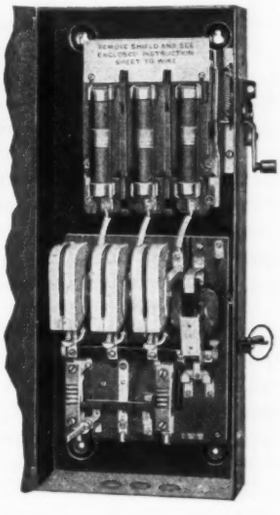
One of 85 G-E CR7008 combination magnetic switches controlling and protecting G-E screenless, open textile motors on spinning frames in a Southern textile mill

DID it ever occur to you that your magnetic switches may be causing you unnecessary expense? If not, think of the many times that your switches have thrown motors off the line during harmless overloads, halting your production temporarily and needlessly wasting the time of your operators. Such shutdowns are, perhaps, inexpensive in the individual case, but they are unnecessary and they total a surprising amount in a year's time.

New G-E magnetic switches will not only guard your motors against overloads, but their unique design will also permit the motors to continue in operation when the overload is of short duration and harmless. G-E magnetic switches will give you this outstanding protection because they are designed to follow closely the heating characteristics of your motor.



Above: *The G-E CR7006-D40 a-c magnetic switch is an ideal full-voltage starter for induction motors. All switch parts are readily accessible*



Right: *Where installation costs must be reduced to the minimum, the G-E CR7008 combination magnetic switch, with fused motor-circuit switch, is particularly advantageous*

Why not plan to replace your old switches with this modern control? Our specialists will be glad to work with you at any time. General Electric, Schenectady, N. Y.

080-65

GENERAL ELECTRIC

Standard-Coosa-Thatcher Appoints Selling Agents

Ireland Brothers, Philadelphia, Penn., and The Rowe-Gardiner Company, Amsterdam, N. Y., have been appointed selling agents for Standard-Coosa-Thatcher Co., Philadelphia, Penn., and Chattanooga, Tenn., makers of cotton yarns and threads.

Textile Fiber Consumption Up Sharply in 1935

United States consumption of the four leading textile fibers, cotton, wool, silk and rayon, registered a sharp gain in 1935 as compared with 1934, according to figures made public recently by the *Rayon Organon*, published by the Textile Economics Bureau, Inc. While the consumption of all fibers showed a gain compared with the previous year, the use of wool and rayon registered the sharpest gain. Rayon consumption, for instance, was the largest on record.

Total consumption of all fibers in 1935 amounted to 3,482 million pounds against 3,138 million pounds in 1934, a gain of 344 million pounds or 10.9 per cent. With the exception of 1933, consumption was the largest for any year since 1929.

While cotton consumption gained last year compared with 1934, the percentage as compared with the total consumption of all fibers was probably the lowest on record. Cotton consumption of 2,764,900,000 pounds in 1935 equaled 79.4 per cent of the nation's total fiber consumption as compared with consumption of 2,655,400,000 pounds in 1934 which was equal to 84.6 per cent of the total consumption of all textile fibers.

Rayon consumption on the other hand registered a new high record both as to total and as to percentage of the field. Total United States consumption of rayon in 1935 was 251,700,000 pounds equal to 7.2 per cent of all of the nation's fiber consumption compared with 194,800,000 pounds equal to 6.2 per cent reported for 1934. In 1920, since which year the rayon industry has recorded its greatest strides in the United States, consumption totaled 9,500,000 pounds or 0.3 per cent of the field.

Silk consumption, while higher in 1935 than in 1934, registered a decline in percentage as compared with the earlier year. Consumption of 62,700,000 pounds in 1935 was equal to 1.8 percent of total fiber consumption against 58,500,000 pounds equal to 1.9 per cent consumed in 1934. This percentage change was considered relatively unimportant by the *Rayon Organon*.

Consumption of wool registered the sharpest gain of all fibers last year. Total consumption aggregated 403,600,000 pounds or 11.6 per cent of the field, according to the publication, compared with consumption of 229,700,000 pounds or 7.3 per cent in 1934. Both as to total consumption and percentage of the field wool made the best showing since 1923.

"It cannot be said that wool or rayon substituted for cotton in 1935" states the *Organon*, but rather that the "consumpion of rayon and especially of wool increased more rapidly than cotton consumption did from 1934 to 1935."

Consumption of the various fibers, together with the percentage of consumption of all fibers as a whole, follows:

	COTTON		WOOL		SILK		RAYON		TOTAL	
	lbs	%	lbs	%	lbs	%	lbs	%	lbs	%
1935	2,764.9	79.4	403.6	11.6	62.7	1.8	251.7	7.2	3,482.9	100
1934	2,655.4	84.6	229.7	7.3	58.5	1.9	194.8	6.2	3,138.4	100
1929	3,422.7	85.5	368.1	9.2	81.3	2.0	131.4	3.3	4,003.5	100
1920	2,828.1	88.9	314.2	9.9	29.3	0.9	9.5	0.3	3,181.1	100

New Swatch Book

With an extensive array of bright cottons of every type, weight and texture in support of its forecast for colorful leap year fashions, the Cotton-Textile Institute has just released for distribution its 1936 spring and summer swatch book.

Singled out for special emphasis are the piques—"for evening coats and dresses, sports and day-time frocks, and costume accessories"; rustic crashes featuring "natural" grounds; fine seersuckers and crinkled textures; sheers with corded and raised surfaces and showing peasant designs and unusual color contrasts; formal cottons of airy femininity; nubbed novelties for sportswear; coatings and wash suitings of hand-loomed appearance; and a host of prints, large and small, bold and demure, that show the mark of Tahitian, Ethiopian, Oriental, peasant and modern influences.

By way of widening the usefulness of the swatching service among retailers, garment manufacturers, and clothing teachers in high schools and colleges, the Institute's style staff has prepared a special insert presenting the twelve outstanding types of cotton fashions destined for popular favor this coming summer. These include the casual coat for daytime or evening wear, the two-piece tailored summer suit and separate blouses, the dressy jacket costume, the dark sheer town-wear dress, the culotte outfit, the golf and tennis dresses, the shirtwaist frock, the two-piece spectator sports dress with contrasting blouse and skirt, the mannish slacks and finally the crisp cottons for summer dining and dancing.

In commenting on the "leap-year cottons", as represented in the swatch book, C. K. Everett, of the Institute staff, stated that this year's fabrics are notable for their innovations in construction, texture and the broadened base of design influence. According to him, it is the considered judgment of recognized style authorities that the 1936 cottons have the needed novelty appeal to insure a prolonged popular acceptance in both the volume and "high fashion" price ranges.

More than 20,000 copies have been mailed to business and professional people interested in using or selling styled cotton dress goods. While the bulk of the distribution is confined to the United States, several hundred copies are now on their way to addresses located in practically every civilized country throughout the world.

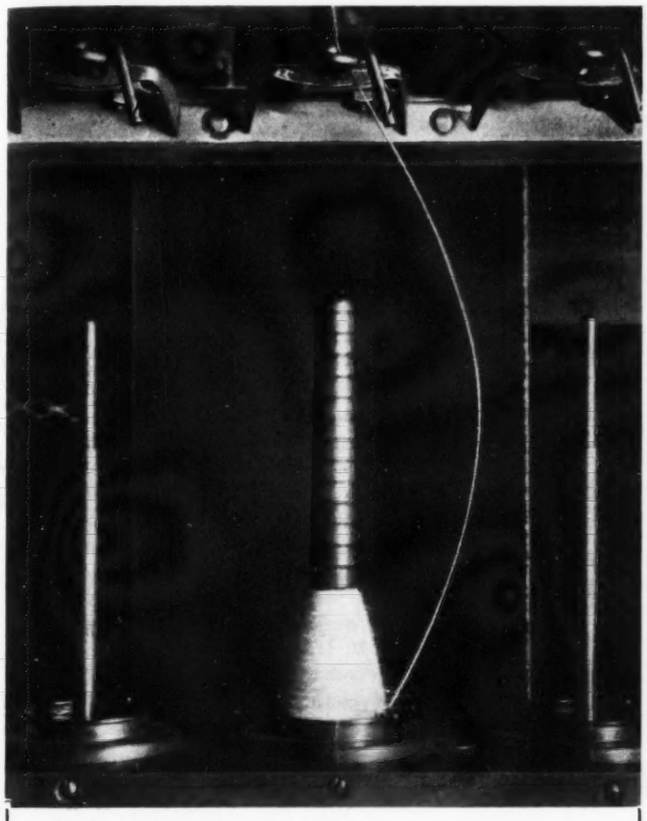
Textile Industry Continues On Active Scale

Based upon reports coming to hand covering operations during January, the textile industry operated on a fairly active scale during the opening month of the year, states the *Rayon Organon*, published by the Textile Economics Bureau, Inc., in its review of current trade conditions. This was due, according to the paper, to the threatened dress strike of February first, and to the temporary stimulating influence of the removal of processing taxes on January 6.

Commenting upon rayon activity, the paper states that "the daily rate of rayon deliveries to American mills during January is measured by the *Rayon Organon's* index of 477 which compares with 473 in December and 1935 monthly average of 446. This small increase was realized in spite of a correspondingly high level of December shipments which were greater than normal for that season of the year."

" Silk deliveries to American mills (including re-exports) in January amounted to 38,995 bales which represents an increase from the 35,559 figure of December, 1935, but which is below the 1935 monthly average delivery of 41,400 bales. Corrected for normal seasonal variation, these deliveries showed a substantial decline."

The price of 87 cents a pound reached for wool at the close of January, the paper points out, was the highest reached since 1929, with the exception of three months in 1933-34.

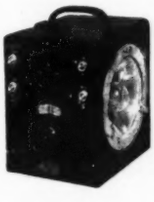


Uniform Traveler Motion

CHECKING the motion of the traveler is just as important as insuring correct spindle speed. Without attaching anything to the spindles or frames, the ring traveler's apparent motion can be slowed down to a fraction of an rpm with the STROBOTAC.

The photograph shows exactly how the spindles and travelers look when viewed with the STROBOTAC. The illustration, in fact, is an unretouched stroboscopic photograph of a spindle turning at 10,400 rpm.

Insure correct spindle speed and uniform traveler motion and a large portion of your production problem is solved.



The STROBOTAC measures speed and slows down motion in high speed machinery. Its speed range is 600 to 14,400 rpm. It is compact, weighs only 12 pounds, and operates from any 110 volt 60 cycle a-c line. The General Radio STROBOTAC is priced at only $95.00.

Write For Bulletin C For Detailed Information

GENERAL RADIO CO.

Cambridge, Massachusetts

Look at that yarn increase, . . . just from new rings!

Most mills are able to step up front roll delivery at least 10% to 15% after replacing worn rings with new ones. Production has been reduced little by little as the rings became worn. From a small investment you receive a definite, quick gain in yarn output, at less cost per pound. Pep up your slow frames with DIAMOND FINISH High-polish Rings.

WHITINSVILLE (MASS.

SPINNING DIAMOND FINISH **RING CO.**

Makers of Spinning and Twister Rings since 1873

Southern Representative: WALTER L. NICHOLSON, 2119 Coniston Place, Charlotte
Mid-West Representative: ALBERT R. BREEN, 2650 Coyne Street, Chicago

Thomas H. Rennie Retires at 79 Years of Age

Thomas H. Rennie

THOMAS H. RENNIE, one of the best known and loved figures in American textile manufacturing, has resigned as vice-president in charge of Avondale Mills, Pell City, Ala., effective March 31. He plans to retire, removing to his home at 1128—S.W. 19th Ave., Miami, Florida.

No accolade could possibly be too extravagant for the record this grand man has achieved in this industry and for the example and inspiration he leaves in it. He has been continuously connected with cotton mills for 71 years, starting in a mill in Lewiston, Maine, when less than 8 years of age. During the past 54 years, he has been connected with two mill companies—starting in 1882, when he first came South from his native Maine, and began work with the Graniteville (S. C.) Mfg. Co., where, from 1885 to 1908 he was general superintendent. In May, 1908, he became president at Pell City Mfg. Co., and when the plant was acquired by the Avondale Mills in 1919, he became vice-president of the parent company. He was president of the American Cotton Manufacturers Association in 1908 and 1909.

Literally thousands of people in the industry—from operative to high executive—whose lives and activities have been strengthened, encouraged and enriched by contact with Mr. Rennie, join in a salute to him, and best wishes for a full enjoyment and happiness as he retires from active connection with an industry to which he has contributed so greatly.—R. W. P.

◆

◆

SAMUEL T. ANDERSON has been promoted from assistant superintendent to superintendent of the Draper-American Mills and the Wearwell Sheeting Mill at Draper, N. C., succeeding G. C. TRUSLOW who was recently made general superintendent of all of the plants of the parent company, The Carolina Cotton and Woolen Mills, with headquarters at Spray.

M. T. BARNHILL has been promoted to overseer of dyeing at the Avondale Mills, Sylacauga, Ala. He succeeds ERNEST J. LEFORT, who has returned to his former position as demonstrator with the Ciba Company, which recently consolidated their southern offices at Charlotte, N. C. MR. Barnhill is a graduate of the Georgia School of Technology, Atlanta, Ga., class of 1932.

T. A. FUSS, who is in charge of the Bedaux department of Callaway Mills, LaGrange, Ga., has been promoted to the position of assistant to M. M. TROTTER, JR., vice-president in charge of manufacturing of this group of plants.

DEXTER STEVENS, treasurer of Esmond (R. I.) Mills, has been made also treasurer and general manager of the Naumkeag Steam Cotton Company, Salem, Mass., dividing his time between the two positions. As treasurer at Naumkeag he succeeds Ernest N. Hood, who recently resigned, and as general manager, assumes the duties of the late J. Foster Smith, who was agent.

LANIER BRANSON, president of the Graniteville (S. C.) Manufacturing Company, and president of the Sibley Manufacturing Company, and the Enterprise Manufacturing Company of Augusta, Ga., has left for an extended trip to California, stopping off in Cuba and Panama. During Mr. Branson's absence, STONEY DRAKE will devote the major part of his time to the operation of the Sibley and Enterprise plants at Augusta.

R. K. IVEY has been made night overseer of carding and spinning at the Alabama Mills, Haleyville, Alabama. A. F. Fox has been made overseer of weaving.

G. R. DAVIS has been promoted from overseer of carding and spinning at the Aliceville (Ala.) plant of the Alabama Mills, to superintendent of the company's plant at Haleyville. H. E. HARDEN is overseer of carding and spinning at this plant.

HARRY L. MILLER, formerly vice-president and technical director of the Quaker Chemical Products Corporation, Conshohocken, Pa., has resigned his position with that company to form the Haas-Miller Corporation, Philadelphia, Pa.

JOHN A. BAUGH, JR., formerly agent for Manville Jenckes Corporation, Gastonia, N. C., is now associated with Walker Engineering Company, Inc., Gastonia, N. C., in their sales division.

ROBERT J. MCCONNELL has joined the staff of the Whitin Machine Works and will have charge of service activities in New England and the South.

W. E. WILLIAMS, formerly assistant superintendent at the Wetumpka (Ala.) plant of Alabama Mills, has been made superintendent of the Dadeville (Ala.) plant, succeeding D. F. POOLE, who remains with the organization in another capacity. J. A. SCOGGINS recently became overseer of weaving at Dadeville; other overseers are: J. M. HARRISON, overseer of carding and spinning; O. K. KINETT, overseer of cloth room; and E. R. RAY, master mechanic.

J. W. MCELHANNON, who has recently been general manager of the Waverly Mills, Inc., Laurinburg, N. C., recently became manager of the Durham Cotton Mfg. Co., East Durham, N. C., succeeding E. O. STEINBACH, who has been made manager of the Florence Mills, Forest City, N. C.

W. H. TROXLER has accepted a position as overseer of carding and spinning with the Carter Mills No. 1, Lincolnton, N. C. He was formerly connected with the Tabardrey Manufacturing Company, Haw River, N. C.

T. H. PENNINGTON has retired as overseer of weaving at The Trion Company, Trion, Ga., after many years of continuous service. THOMAS F. HARRIS of Tallassee Mills, Tallasee, Ala., has succeeded Mr. Pennington at Trion.

Obituary

J. FOSTER SMITH, agent of the Naumkeag Steam Cotton Company (Pequot Mill), Salem, Mass., passed away on Monday, January 27, following a heart attack. He was 76 years of age and had been with the Pequot Mills for 58 years; he had been agent since 1918.

JOHN C. FERGUSON, president of the Eclipse Machine Company, succumbed to a heart attack on January 7 at the age of 67. Mr. Ferguson entered the employ of the company in 1894. He was made general manager of the Eclipse Machine Company in 1913 and in 1928 assumed the presidency.

GEORGE H. WHALEY, president of John Campbell & Company, New York City, passed away on January 19.

2 Instruments in 1

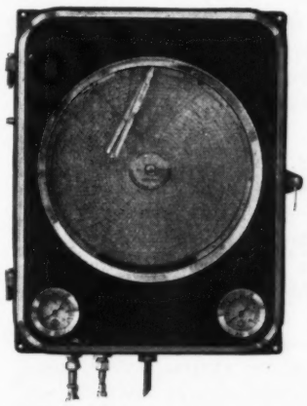
JOHNSON

RECORD-O-STAT

A COMBINED CONTROLLER-RECORDER

One mercury element actuates both recorder and controller! This insures the most dependable and accurate calibration. The Johnson Record-O-Stat is a rugged all-metal instrument with jeweled bearings and precise construction throughout . . . protected by a sturdy aluminum case with moisture-proof seal, convenient clamping knob and lock.

A two-element instrument is also available, useful as a recorder and controller of wet and dry bulb temperatures. Each element operates a separate pen-arm and control relay. Bulletin T-310 describes the Johnson Record-O-Stat. H-310 indicates various wet bulb attachments.



Johnson manufactures and installs a wide variety of automatic temperature and humidity regulation devices for the control of space heating and processes throughout the mill . . . A single, nation-wide organization engaged in just this one line of business.

JOHNSON SERVICE COMPANY

Main Office and Factory: MILWAUKEE, WIS.
Branch Offices in all Principal Cities

THE MOST

Alert Watchman

YOUR MONEY CAN HIRE . . .

Fairbanks Printomatic scales guard your profits and watch over production processes. Quietly, efficiently, they measure and automatically record every operation in which weight is a factor.

They never know a quitting time. They never forget . . . never make mistakes . . . never fail to print accurately.

Printomatics may be purchased outright or leased. They can also be installed on Fairbanks Dial Scales now in service. Address Department F 801, Fairbanks, Morse & Co., 900 S. Wabash Ave., Chicago, Ill. And 40 principal cities—a service station at each house.

6586SA70.16

FAIRBANKS Scales
PREFERRED THE WORLD OVER

PERSONAL NOTES

about Men You Know

J. O. THOMAS has been made administrative assistant to LUTHER H. HODGES, production manager of the Carolina Cotton & Woolen Mills, Spray, N. C., and of the other plants of Marshall Field & Company. Mr. Thomas, a native of Spray, has been with the company since 1919, and from 1925 to 1934 was personnel director. More recently he has been general superintendent of the American Warehouse and Spray Bleachery, two of the company's main finishing plants, at Spray.

J. O. Thomas

J. H. LINDSAY, who has been superintendent of the Bedspread Mill of the Carolina Cotton & Woolen Mills, at Leaksville, N. C., has recently been transferred to general superintendent of the American Warehouse and Spray Bleachery, Spray, N. C., succeeding Mr. Thomas.

C. A. DAVIS, who recently has been connected with the company's general office, and who previously was superintendent of the Pilot Mills Co., Raleigh, N. C., has been made superintendent of the Bedspread Mill, Leaksville, succeeding Mr. Lindsay.

G. C. TRUSLOW, general superintendent of the Carolina Cotton & Woolen Mills, Spray, has been appointed also, director of quality control, a new department, which includes checking of finished products, causes of "seconds", etc.

WILLIAM P. CARGILL, who recently became superintendent of the Autauga Cotton Mill Co., Prattville, Ala., has been transferred to the superintendency of the Sand Springs (Oklahoma) Cotton Mills as local manager. GEORGE W. JOHNSON, who has been superintendent of the Montala Mfg. Co., Montgomery, Ala., which has been closed down, succeeds Mr. Cargill at Prattville.

J. L. CHANNELL, formerly of Ozark, Ala., has succeeded C. C. COBB, retired, as superintendent of the Opp Cotton Mills and Micolas Cotton Mills, Opp, Ala. C. C. COBB, JR., is assistant superintendent.

LUTHER H. HODGES, general manager of the Carolina Cotton & Woolen Mills, with headquarters at Spray, N. C., has been made production manager of all of the plants included in the manufacturing division of the parent organization, Marshall Field & Company. This adds 14 mills to the group under Mr. Hodges' supervision, and the complete list of plants of which he has supervision as production manager, including those in the Carolina Cotton & Woolen group, includes:

Spray Woolen Mill, woolen piece goods and blankets, American Warehouse, finishing blankets, robe cloth, table felt, etc. Spray Bleachery, finishing sheetings, Lily Silk Mill, woven silk and rayon fabrics, Rhode Island Mill, cotton suitings, headlinings, etc.—all at Spray N. C.; Wearwell Bedspread Mill, bedspreads, and Karastan Rug Mill, rugs, Leaksville, N. C.; Draper American Mill, cotton blankets, part wool blankets, robe cloths, slasher cloths, and Draper sheeting mill, sheetings, Draper, N. C.; High Point Silk mill, rayons and silks, High Point, N. C. (this plant was recently sold); the towel mill and full-fashioned hosiery mill at Fieldale, Va.; The Athena Knitting Mill, knit goods, and Puritan Mill, lingerie, Roanoke, Va.

In addition to these, the following 14 plants were recently put under Mr. Hodges' supervision: Torresdale Hosiery Mills, Fairhill Pile Fabrics Co., plush goods, and Home Crest Mill, rugs and carpeting, Philadelphia, Pa.; Lace Curtain Mill and Zion Handkerchief Mill, Zion, Ill.; Lumb Knitting Mill, underwear, Pawtucket, R. I.; Thread Mills, Monticello, Ind.; Shirt Mill, Manistee, Mich.; Mart Lingerie, and Wabansia Cotton Dresses, Chicago, Ill.; Philippine Lingerie, Manila, Philippine Islands; Puerto Rico Lingerie, Mayaguez, Puerto Rico; Shanghai & Swatow, handkerchiefs, China; and Mayaguez Mills, handkerchiefs, Puerto Rico.

THOMAS ASPDEN, for a number of years connected with the textile industry in this country and abroad, and connected with the southern office of H. & B. American Machine Company, Atlanta, Ga., for the past 11 years, has engaged in business for himself and will specialize in surveys and appraisals for spinning mills, etc. His address is Box 218, Atlanta, Ga.

A. H. BAUGH, overseer of weaving, Saratoga Victory Mills, Albertville, Ala., has been promoted to superintendent of the plant.

HOWARD R. HART, formerly general superintendent of the Aiken, Bath, Clearwater, and Langley (S. C.) plants of the United Merchants & Manufacturers, has accepted a position as assistant to J. B. HARRIS, vice-president of the Greenwood (S. C.) Cotton Mill, Ninety Six (S. C.) Cotton Mill and Mathews Cotton Mill, Greenwood, S. C. Before going to Langley, Mr. Hart was superintendent of the Victory Manufacturing Company, Fayetteville, N. C. and the Durham Cotton Manufacturing Company, East Durham, N. C.

S. M. BEATTIE, president of the Piedmont (S. C.) Manufacturing Co., has been elected president of the Woodside Cotton Mill Company and the Easley (S. C.) Cotton Mills. He retains his position at Piedmont also, and in his new activities succeeds E. M. JOHNSTON, who will continue with the Woodside and Easley organizations in another capacity. WILLIAM H. BEATTIE, president of the Wallace Manufacturing Co., Jonesville, S. C., has been made vice-president of the Woodside and Easley groups also. E. F. WOODSIDE remains with Woodside and Easley in a managerial capacity.

J. BEN DOAR, JR., has been made secretary of the F. W. Poe Manufacturing Co., Greenville, S. C., succeeding WALTER WRIGHT who resigned several months ago. Mr. Doar has been connected with the Poe Mill office for several years.

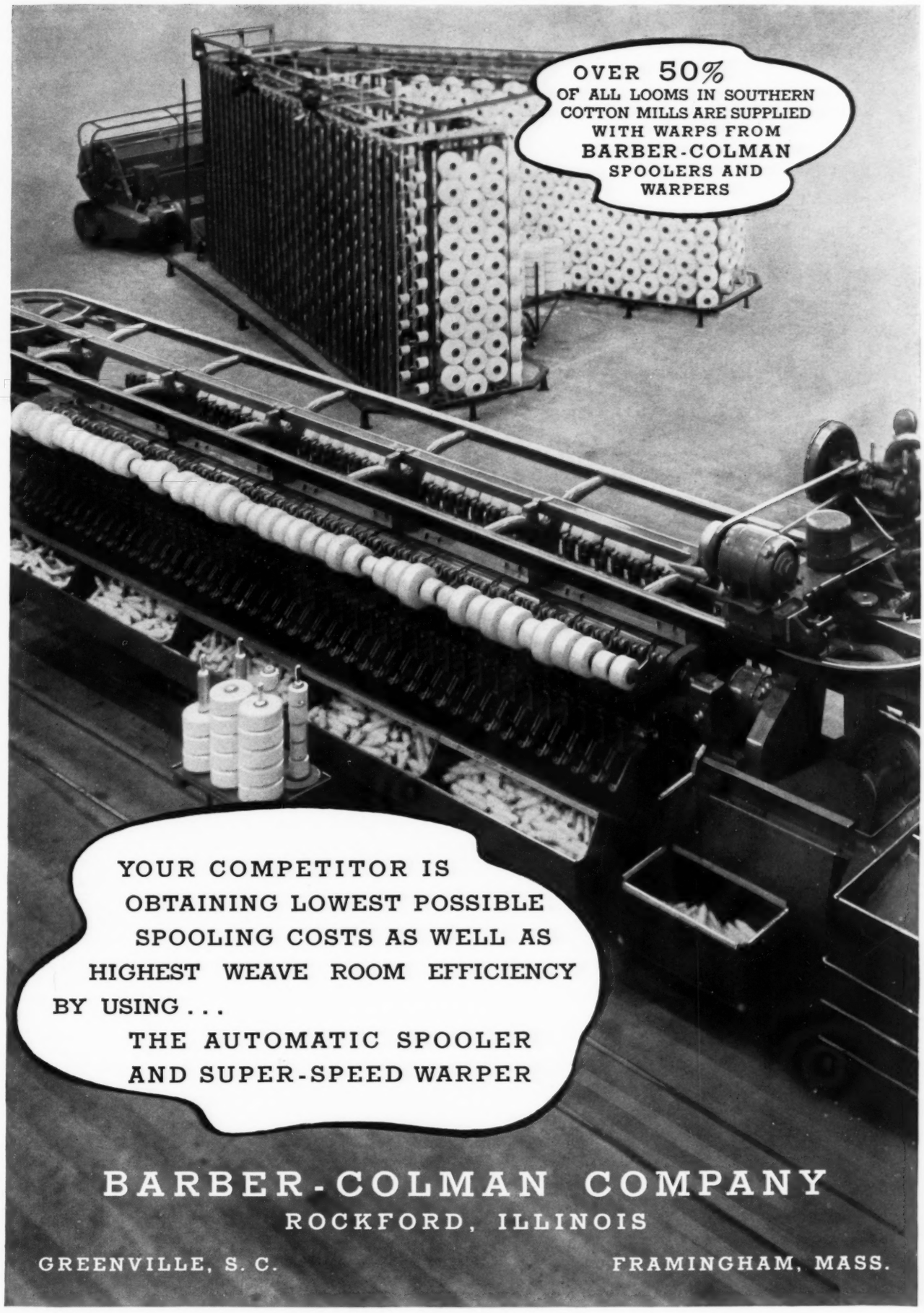
O. R. BLALOCK has been made general manager and treasurer of the Leward Cotton Mills, Worthville, N. C., succeeding W. L. WARD, who recently resigned.

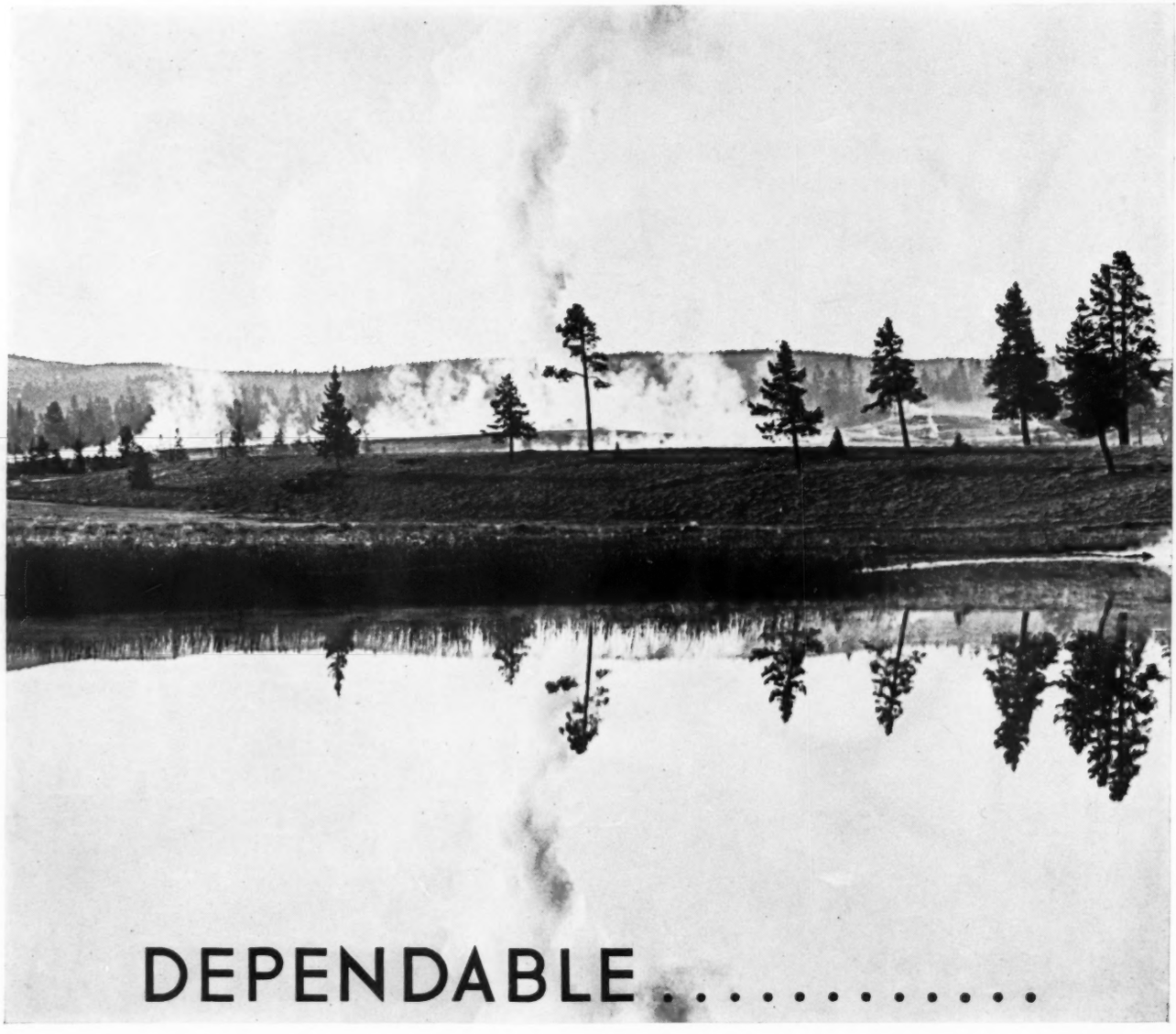
SAM H. ELLIOT has become superintendent of Fairforest Finishing Company, Fairforest, near Spartanburg, S. C. He succeeds JAMES BROWN, who has been superintendent since the plant opened about five years ago and who has resigned because of poor health. Mr. Brown has gone to Hot Springs, Ark., for recuperation. Mr. Elliot has been with the Delta Finishing Company of Philadelphia as superintendent for the past 10 years.

PAGE ENLOE has been made agent of the W. A. Handley Manufacturing Co., Roanoke, Ala. Mr. Enloe, a graduate of Lowell Textile Institute, who has been assistant superintendent of this plant for several years, immediately succeeds his father, the late H. ENLOE, who was for several months prior to his death agent succeeding the late J. R. Dunson.

ARTHUR S. THOMAS is superintendent of the Opelika Mills, Opelika, Ala., which will operate the plant of the old Opelika Manufacturing Co., recently acquired by M. Snower & Company of Chicago who are converting it from a yarn mill to a weaving mill. Mr Thomas recently has been field representative of the Cotton-Textile Institute. Previously he was southern representative of the Abbott Machine Company of Wilton, N. H., and prior to that connection had been treasurer of the Whitney (S. C.) Manufacturing Company and superintendent of the Abbeville (S. C.) Cotton Mills.

Additional personals and obituary notices on page 90.

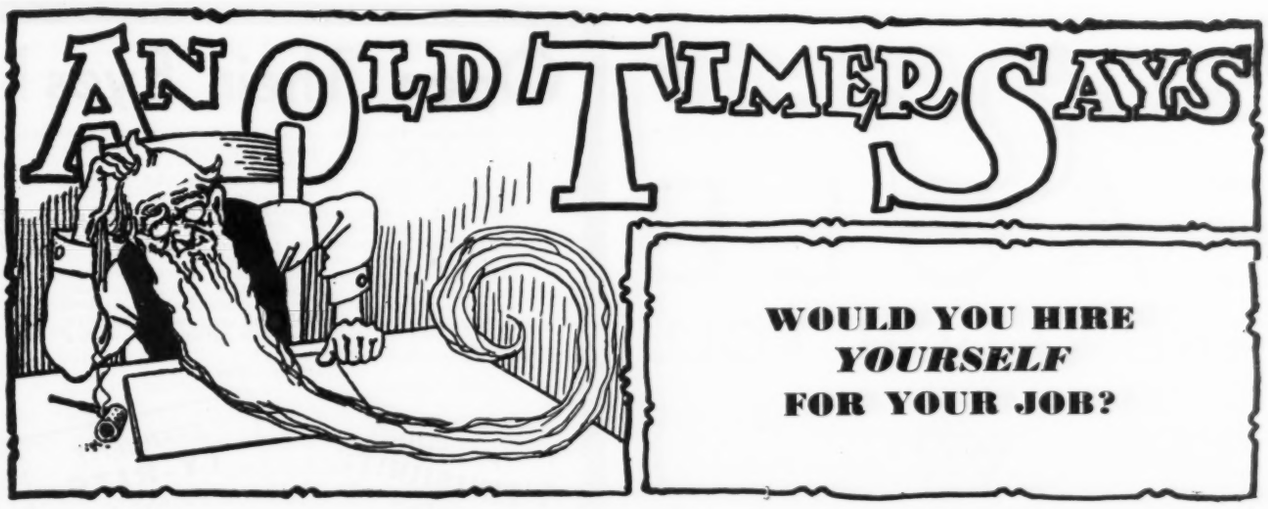

OVER 50%
OF ALL LOOMS IN SOUTHERN COTTON MILLS ARE SUPPLIED WITH WARPS FROM
BARBER-COLMAN
SPOOLERS AND WARPERS
YOUR COMPETITOR IS OBTAINING LOWEST POSSIBLE SPOOLING COSTS AS WELL AS HIGHEST WEAVE ROOM EFFICIENCY BY USING . . .
THE AUTOMATIC SPOOLER AND SUPER-SPEED WARPER
BARBER-COLMAN COMPANY
ROCKFORD, ILLINOIS
GREENVILLE, S. C.
FRAMINGHAM, MASS.



DEPENDABLE.....

Old Faithful is perhaps the most famous geyser in the world because its eruptions at regular intervals of 65-70 minutes have been going since before the memory of man. There are many geysers unique in many respects—but none of them dependable, like Old Faithful.

Thirty-seven years is not old as businesses go. Sonoco Products Company is not large as big business is counted, but since their beginning in 1899 Sonoco Products have achieved recognition for dependability that is world-wide throughout the Textile Industry which they serve.



Stop Worrying!

*"*WORRY *is like a tiny stream trickling through a mind. If encouraged it will form a channel through which all thought is drained."*

The foregoing is such a deep thought that I believe it will pay any person, be he superintendent, overseer or operative, to try to study and interpret its full meaning.

So many people lower their efficiency by unnecessary worry. Have you ever stopped to think how many things you worry about that never materialize?

If you will use your note-book to make a note every time you catch yourself worrying about something, and then in a few days or weeks after this particular problem has passed, check in your notebook whether the worry was necessary or not—inside of a year's time you will not only be surprised but will have relieved your mind of a tremendous load that, as stated, has been lowering your efficiency.

To carry this same thought further, just stop and think of the morning that you go to your work when you are feeling extra well. You seem to accomplish more on that day. The day seems to pass off more quickly. You have really enjoyed your work. How differently a day like this passes off with the number of things you have done in comparison to days on which you have some worry of some kind on your mind!

I do not believe the average human being realizes the value of encouragement. To illustrate my point: If your employer has occasion to compliment you on your last month's record or for some particular thing about your work on which you have done a nice job, then for the next few days you are all pepped up and are not only doing your regular work but are exercising every effort possible to find some way to improve your job.

You will probably find little ways of lowering your cost that you had not thought of before. You will probably go out to your subordinates and speak an encouraging word to them, thereby passing along the same encouragement your employer gave you, with the result that probably the whole department or mill is pepped up, so to speak, from the few words of encouragement that you received from your employer.

Stop now and think just how much this amounts to in dollars and cents, and then reflect and try to reason with yourself as to why you do not do more of it even at times when you have not had the incentive of your employer encouraging you.

This is one of the freaks of human nature. It is so easy to say, "Yes, anybody knows that," but it is very hard to explain why more employers, namely, managers, superintendents and overseers, do not use the thought.

As a matter of fact, we overseers and superintendents can hardly be spoken of as individuals because we act more in a mass. Of course, every superintendent and overseer thinks that he has an outstanding individuality, but when you begin to analyze your work, to find how many things you do differently from other superintendents and overseers, you will have a hard time getting out of that general classification known as the "mass".

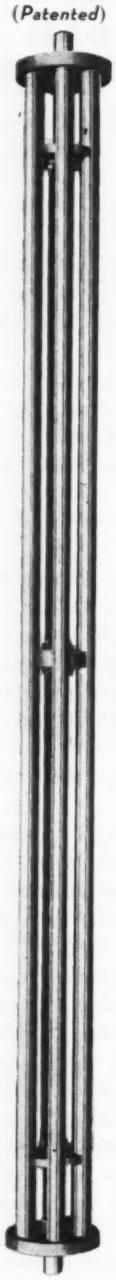
It is so easy for us as human beings to follow the line of least resistance, and that, strictly speaking, throws us into the class of herd or mass.

This reasoning applies not only to superintendents and overseers, but to people in practically all vocations, including politicians, wealthy people, poor people, and especially groups of operatives. In fact, the very word Democracy might have as one of its interpretations, that we all belong to a herd and that the majority of the herd controls the others.

Comparatively speaking, there are very few people who do think differently from others. Thinking is one of the hardest jobs for a human being to do, that is, to think differently from the common herd. Even professional inventors seem to get into a rut with their ideas and their minds run in a channel.

The great majority of us belong to the herd and are simply inert. We accept the conditions under which we live. We do not seem to possess the effort to make changes, especially changes for the better. We are so prone to do the *usual* thing. To put the matter very plainly, we as a group of overseers and superintendents are a little more than what might be

EAGLE
PENETRATION ROLL
(Patented)



You can now be assured of real penetration in your warp sizing. The Eagle Penetration Roll allows the sizing to boil all through the yarn and penetrate every fibre.

Specially designed curved blades through the center of this roll force the size outward which hastens penetration considerably. Slasher production can be increased without decrease of regain in the sized yarn.

Careful tests prove this roll to be highly advantageous in eliminating lumps in sizing and preventing hard size spots, and that the retention of size carried through to cloth room saves cotton by enabling the mill to run a. 1% lighter warp yarn with the customary filling numbers and maintain correct cloth weights.

Eagle Penetration Rolls are made to fit in any type or model slasher size box. They take the place of the usual plain immersion roll and fit into the regular immersion roll bearings. High quality brass tubing is used in their construction and the specially designed center blades are also of brass.

Eagle Penetration Rolls are saving money for such mills as Piedmont Mfg. Co., Springs Cotton Mills, Greenwood Cotton Mills, Monarch Mills (Lockhart Plant), Pacolet Mfg. Co., Riverside & Dan River Cotton Mills, the Victor Monaghan Group, etc.

Every 100,000 pounds of warp slashed on a slasher equipped with an Eagle Penetration Roll saves the mill the price of this roll. Full information and prices will be gladly sent on request. Drop us a line today.

EAGLE IRON WORKS, : : : GREENVILLE, S. C.

Open Their Eyes!

To open the eyes of buyers, the textile manufacturer must give them something *better* than the average in salable products.

The success of our customers is the primary consideration and it is the purpose of NORTH SERVICE to help them make their product a winner. To this end, our practical men visit your mill and go thoroughly into your methods and systems of sizing, make laboratory tests on cotton, sized and unsized warp and cloth, determine moisture content, dry size and other conditions, and then cooperate with you to secure the desired weight and feel of cloth and any other requirement necessary to make your product a winner in the cloth markets.

Consult us today.

FINISHING **FINISHRITE** PRODUCTS

EFFICIENT **TY-RITE** TYING-IN

SLASHING **WEAVEWELL** PRODUCTS

Scores of mills depend on these 4 NORTH products.

SHUTTLE **GREASE-RITE** TALLOW

FRANK G.
NORTH
INCORAPORATED
Manufacturing Chemists

P. O. Box 844, Atlanta, Ga. Phone Main 3665

P. O. Box 92, Marietta, Ga. Phone 250

Get Clean Yarn from Spinning Frames and Save Money on Oil Bills

Some mills still tolerate a heavy loss from oil-stained yarn on spinning frames because they use liquid oil, which creeps from roll necks and spreads to the face of rolls.

The loss from blackened yarn alone is often many times the cost of the lubricant. That's why 7 out of 10 mills use drip-less waste-less NON-FLUID OIL which stays in bearings and off goods. Saving is made on oil and application cost also, for NON-FLUID OIL outlasts liquid oil 3 to 5 times.

Check these savings in your own mill.
Write today for testing sample.

New York & New Jersey Lubricant Co.
Main Office: 292 Madison Ave., New York, N. Y.
So. Agent, L. W. Thomason, Charlotte, N. C.

WAREHOUSES

Chicago, Ill.	Detroit, Mich.	Atlanta, Ga.
St. Louis, Mo.		Charlotte, N. C.
Providence, R. I.	Spartanburg, S. C.	Greenvil'e, S. C.

TRADE MARK REGISTERED
NON-FLUID OIL
U.S. PAT OFFICE & FOREIGN COUNTRIES

MODERN TEXTILE LUBRICANT

Better Lubrication at Less Cost per Month

termed raw material, out of which now and then real individuals come out from the mass and swim up stream.

As pointed out in another article, the man who does emerge from the mass or the herd and attempts to swim up stream at once sets himself up in competition with the balance of the herd. This of course makes it hard for a man with a new idea, and that is why an overseer or superintendent should be very cautious in putting a new idea over to his operatives.

When a man has a new idea he is at once regarded by the mass as being wrong. His very originality sets up resistance and the fact that he has a new idea and it is being considered as wrong results in his having the mass of the people against him. You cannot get away from the fact that all people think their own ideas are the only correct ones.

This is probably seen more forcibly in religion than in business. All religious sects, or at least the fanatics in those sects, think that all other religions are heathenish. Whenever you have a new idea you must at once realize that the mass in general has a different opinion, and if you put your new idea over you are going to have to use good judgment and diplomacy in presenting the idea to operatives or to your brother overseers and superintendents.

All of the foregoing is being explained in order to drive home the fact to you as to why so many men are unable to put over or to sell their new ideas to their subordinates and operatives.

On the other hand, the mass of people will rally around and elect to leadership a man who has a foolish idea, provided it meets with the approval of the mass. All political history proves this. Take for example some of the theories that have been advocated in the last few years. The great mass of people know it is impossible to give every individual $5,000 or $10,000, a farm and stock for that farm, or $200.00 per month and all of the other things the politicians promise and advocate, but look what a tremendous following these men with these foolish ideas have.

Some of these men have such a following that the more sane politicians were alarmed and thousands of dollars were spent in order to combat what even the ordinary citizen would admit to you was foolish and could not possibly ever materialize.

This gives you and me as overseers and superintendents another idea or line of reasoning. When we have a new idea which we wish to put across, if we can couple with our idea certain things that we know will appeal to the masses that will help us put it across. The very fact that it will appeal to the great majority will help us put across our main idea out of which we hope to derive benefit both for our employer and for the operative.

If we can only get the operatives to realize that the last statement just made, which practically states that any new idea in regard to manufacturing will really benefit *both* employer and operatives, then we will get co-operation from the operative in putting a new idea across.

It is an axiom that "He serves himself best by being of service to others;" that he serves best who serves the whole system of business—and this resolves itself around the fact that a man who is working for a firm or a corporation of any kind must show returns to them on his management or ideas before they can show any return to him in salary.

To say that a competent man makes $50.00 for himself and $50,000 for the shareholders might sound unreasonable. However, this is merely illustrating that one man is paid a larger salary for running what the general public thinks is the same job, than another man is paid for running that job.

U. S. and World Output of Rayon Broke All Records in 1935

The rayon industry in the United States, as well as in other rayon producing countries, continued to register sharp gains during 1935, the result being that new high record production figures were established according to figures recently made public by the *Rayon Organon*, published by the Textil Economics Bureau, Inc.

Production of rayon in the United States aggregated 256,659,000 pounds in 1935, according to the publication, a new high record for all time, and an increase of 48,163,000 pounds or 23 per cent compared with the 1934 output of 208,496,000 pounds. Production of viscose plus cuprammonium yarn totaled 200,800,000 pounds in 1935, an increase of 18 per cent, whereas acetate yarn output totaled 55,859,000 pounds, an increase of 47 per cent.

While the U. S. reported a healthy gain in 1935, the proportion of our output to the world's total was practically unchanged. The 1935 world production of rayon is estimated by the *Rayon Organon* at about 950,000,000 pounds as compared with 775,000,000 pounds in 1934, an increase of 22 per cent. Last year's output again broke all records.

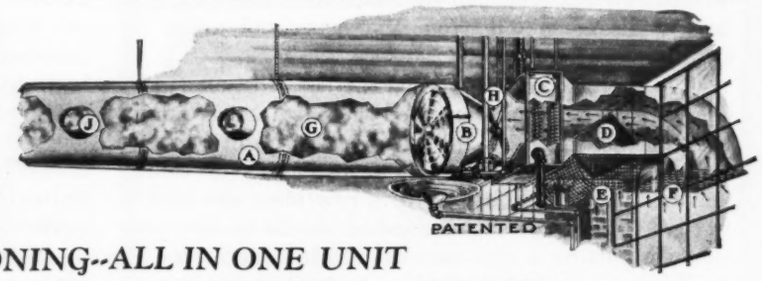
Besides the United States, the paper states, all key rayon-producing countries will show very substantial increases, especially Japan, Great Britain, Germany and Italy. The Japanese output is estimated at 215,000,000 pounds against 153,000,000 pounds in 1934, an increase of 40 per cent. And this record was made, it is pointed out, with a sizeable part of the installed capacity sealed to prevent overproduction.

United States consumption also established a new record in 1935. Last year's consumption totaled 251,722,000 pounds, an increase of 29 per cent compared with consumption of 194,808,000 pounds in 1934. Stocks on hand at the close of the year increased by 2,750,000 pounds, but these stocks, based upon week's supply in comparison with shipments, indicated a relative decline from the already reasonable 1934 level.

J. H. Windle Opens Business in Providence, R. I.

J. H. Windle, widely known in the textile industry, resigned in February as vice-president of the Standard Mill Supply Company, and established J. H. Windle & Company, 231 South Main St., Providence, R. I., to deal in textile machinery and equipment. Mr. Windle started in the textile business 35 years ago, as an erector, later designing machinery, doing mill engineering, and then becoming superintendent and selling agent for the Woonsocket Machine & Press Company and Fales & Jenks Machine Co., handling this work for 21 years prior to the time these concerns were acquired by Whitin Machine Works.

BAHNSON HUMIDUCT



NEW DEVELOPMENT FOR HUMIDIFYING--HEATING-- VENTILATING--AIR CONDITIONING--ALL IN ONE UNIT

THE BAHNSON COMPANY, WINSTON SALEM, N. C.

Sales Engineers:

I. L. Brown, 886 Drewery St. N. E., Atlanta, Georgia.

S. C. Stimson, Winston-Salem, N. C.

F. S. Frambach, 703 Embree Crescent, Westfield, N. J.

D. D. Smith, 814 West South St., Kalamazoo, Michigan.

DRONSFIELD'S PATENT

"ATLAS BRAND"

EMERY FILLETING

"The New Flexible" "Needs No Damping"

Stocks in all the leading Mill Centers

TRADE MARK ATLAS

The Standard Card-Grinding Medium

GUARANTEED "A" QUALITY THE ONLY QUALITY WE MAKE

Used the wide world over, like The DRONSFIELD CARD-GRINDERS

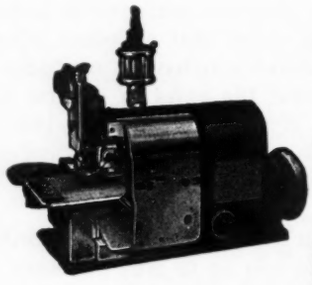
Stocked by the *Principal Mill Supply Houses*

Sole Agents for Dronsfield's Machinery for U. S. A.:— John Hetherington & Sons, Inc. 250 Devonshire St. Boston, Mass.

TRADE MARK

MERROW

REG. U. S. PAT. OFF. AND FOREIGN COUNTRIES



HIGH SPEED TRIMMING AND OVER-SEAMING OVEREDGING AND SHELL STITCH MACHINES

FOR USE IN THE FABRICATION OF KNITTED AND WOVEN GOODS OF ALL KINDS.

—200 VARIETIES FOR 200 PURPOSES—

WRITE FOR DETAILS REGARDING

MERROW STYLES 60ABB AND 60D3B MACHINES

PRODUCING A FLAT BUTTED SEAM (AS ILLUSTRATED BELOW) TO FACILITATE SUBSEQUENT PROCESSING OF TEXTILES

FINISHERS REPORT DEFINITE SAVINGS BOTH IN LABOR AND FABRIC. LET US DEMONSTRATE WORK OF THESE MACHINES ON YOUR OWN PRODUCT.

THE MERROW MACHINE COMPANY

16 LAUREL STREET HARTFORD, CONN., U. S. A.

Southern Representatives:

E. W. Hollister, P. O. Box 2143, Charlotte, N. C.

R. B. Moreland, P. O. Box 895, Atlanta, Ga.

CLINTON STARCHES

FOR ALL TEXTILE PURPOSES

Manufactured by

CLINTON COMPANY

CLINTON, IOWA

QUALITY SERVICE

HOW OTHER MEN MANAGE

Practical Discussions by Cotton's Readers On all Varieties of Mill Subjects

An Overseer Again Discusses Human Relationships

EDITOR COTTON:

It has been over a year since I have written anything for our magazine, but, as you know, I have been very busy in various and sundry ways.

One of my last offerings was an article dealing with Human Relationships in Industry (page 77, November 1933 COTTON) and, let me say here and now that I have not backslid since that writing—rather I have tried to progress.

In the June 1935 issue of COTTON, page 95, "CONTRIBUTOR NO. 6391" writes on the subject of Fitting the Second Shift Help into the Community Life. Frankly, I have been thinking about his article and mine and I decided that some of the questions raised and the thoughts expressed in these two writings dovetail with each other.

However, we are all in the same fix as a certain cleaning soap—"We haven't scratched yet", and I am more inclined than ever toward the belief that there should be a thorough and comprehensive study made to determine the whys and wherefores of the unrest, suspicion and troublous times that have been and are yet going on, not only on one but both shifts, and this is not by any means confined to the textile industry.

I am convinced that so long as the government remains in the industrial world, there is very little if anything that manufacturers can do toward finding a suitable place for either shift, nor can they settle the many other disagreeable questions that have been raised.

If I could have a fling at prescribing a remedy or assisting with a cure, I would work upon the theory of education. As you know, I have had some first-hand experience in social work, and I have had an opportunity to observe in my neighbor's camp. I think I have profited by both experience and observation and I hope I am a better man as a result.

One of my first efforts at education would be to impress upon not only the workers but our entire population that "No man liveth or dieth unto himself". Our neighbors around the mill villages are just as responsible for the community life and what should be a civic pride as are the workers themselves.

It has been my pleasure to be associated with mills where the entire community was thoughtful and the workers were appreciative. One of these mills is located in the Carolinas and there is only an imaginary boundary line between the mill village and the city. In this mill community all forms of sports and athletics are indulged in and enjoyed. The mill owns and operates a splendid golf course where during recreational hours one may find a foursome made up of the superintendent, a doffer, a carpenter and the preacher—and that is a regular occurrence. The mill owns a magnificent community building and has a director in charge, and those who care to take advantage of the pleasures afforded there will find pool tables, bowling alleys, indoor basket-ball and volley ball courts, etc. There is an auditorium for community affairs, including dances. The women have their club room, the men their lodge halls. Tennis, basket-ball and what have you are sponsored in the summer months.

Let me say right here that from this mill village has come forth athletes who have starred in sportsmanship. From the mill have arisen men who were accounted worthy and efficient, who have gone from the mill into neighboring states as far away as New England and New York and as far West as Detroit, all making good. The remarkable part about these men is their background. None of them was the child of wealthy parents, none came from the home of overseers or highly educated folk. They were without exception from the country homes, the village homes, and the town homes, and the numbers are almost equally divided as to where they came from. I know this to be a fact because I know each of these men and young men by their first names. The mill school has girls in the Moody Bible Institute studying for foreign mission service, boys in college studying for the ministry, and others are being trained at home to become specialists in other lines of work or professions.

Perhaps some of the readers may think this sounds like a fairy tale or like fiction, but I am in a position to verify every statement that I have made.

It is true that in 1917 conditions were far different; the town and village were at loggerheads, the country folk would drive around the village rather than pass through on their way to town. They fought among themselves. I have had my hand through a hole in the front door of a man's home which was made with a "Long Tom" squirrel gun loaded with buck shot and fired by this man's neighbor. What was the argument Oh, they had a falling out about the children.

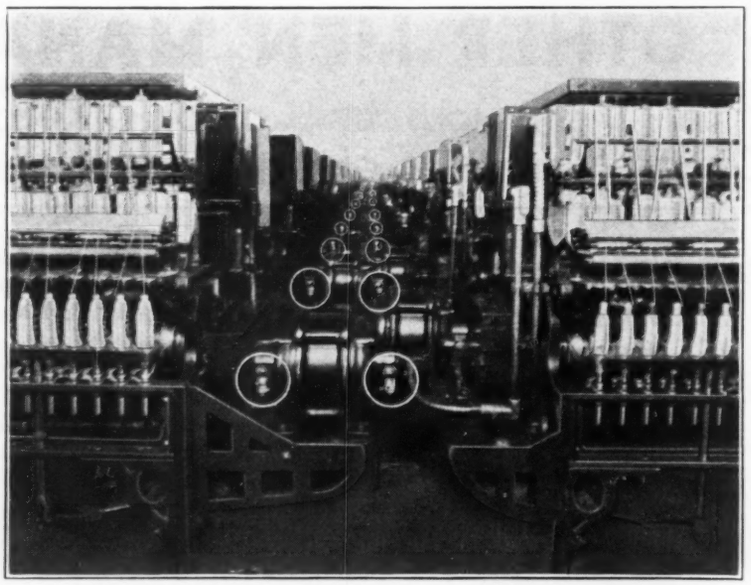
Nothing like that occurs now. Why? Because through the foresight of the mill management and with the co-operation of the town, educational efforts were put forth. No, this place is not a paradise, but it is a wonderful improvement over previous conditions.

Now, should you go into this mill, you would notice the intelligent young folks who tend the machines, you could not fail to observe the friendship and comradeship existing among the workers. True, you would find some of the older heads who have not had an opportunity for education, and they may have to be handled with gloves on.

TRICO

OPTO-MATIC

The OPTO-MATIC is the only modern, visible constant level ring and ball bearing lubricator having micrometer level adjusting device for quick installation and accurate level adjustment. There are no delicate parts, rubber floats, springs, small tubes to clog or air-block, no cork gaskets to leak causing "emptying out".



AUTOMATIC VISIBLE LUBRICATORS

TRICO OPTO-MATIC Oilers are being installed in large quantities on high speed Textile Mill machinery where lubrication plays an important part. These oilers prevent flooding, messy floors, waste of oil, damage to materials and eliminate many tedious hours of labor. Proof of their dependability can be seen in the above mill installation where 392 OPTO-MATICS are in service, AN INVESTMENT THAT HAS PAID FOR ITSELF QUICKLY.

Write for additional information.

TRICO

DRIP-DROP

The DRIP-DROP is a bottle oiler which eliminates daily oiling by the old-fashioned oil can method. The oil drops on the bearing from the top exactly as the bearing needs it. Nothing to get out of order. One filling lasts longer than most oilers of triple capacity. Designed to fit 95% installations without drilling or tapping.

TRICO FUSE MFG. CO., Dept. G. MILWAUKEE, WIS., U. S. A.

F E L T S

WHEN it's felts you want—and when you are particular about uniform quality, proper cushion, perfect nap and correct porosity—you can have perfect assurance that you will get what you want when you specify PHILADELPHIA.

The raw materials, the experience, the men and the equipment—backed up by rigid inspection of every inch of cloth, maintains the quality leadership established years ago by PHILADELPHIA in Roller, Clearer and Slasher Cloths, as well as Stamping Blankets, Palmer Blankets for Sanforizing and Lapping Cloth for Printing.

We will gladly advise with you on any felt problem. Write us today.

PHILADELPHIA FELT CO., FRANKFORD, PHILADELPHIA, PA.

PHILADELPHIA

Perhaps you may ask the cost of this. My reply is that there was no cost, it was all profit. It is true that dollars and cents were spent, men and women spent time and work and worry, folks were suspicious and some cried about the waste; others cussed about the interference with personal privileges. One fine young man was forced to move away because the folks just didn't understand that he was trying to help them, but in the end results show that the proof of the pudding lies in the tasting, and I still repeat there was no cost.

One other point of education I would stress—and this concerns community life—is that the men in supervisory positions, from section men to general manager, be chosen not only as supervisors but as leaders. Men with character and foresight, men who have a Christian love for their fellow man and who are glad of an opportunity to take part in every phase of community and civic life with the idea of making their part of the world a better place in which to live. Men who are not too busy to stop and talk with the man in the alley. Men who are human enough to enjoy a round of golf with their friends. In short, select men who can forget the difference in position, prestige, power and influence. We need men who have a zeal for their jobs and a greater zeal for the men and women, boys and girls with whom they work daily. There are hundreds of boys today who would like to become overseers when they grow up and yet they do not hesitate to say that they would like to be a better overseer than old Stuck-up Overseer So-and-So.

When and if we ever do win the confidence of our people we can begin an educational program that will be well worthwhile. So long as we simply live on Boss Row and work in the mill, taking no time to win the confidence and respect of those with whom we work, we need not expect better conditions than we now have.

I am no preacher, I am not good enough, but I do just like to remind myself daily of a Man who was the only Son of the most royal family on earth or in Heaven. I like to think about His forsaking every good thing He had in His royal home, where He was the honored and worshipped Son, a home that afforded luxury beyond man's imagination—and how this Son counted all of this as nothing when He looked out and saw the deplorable condition of all mankind.

I like to think of how He voluntarily gave it all up and entered man's world with a purpose in view, that being to offer man a better way of living here and hereafter, and did you ever stop to think how He first began? Well, it was through education. He first taught His disciples, and what a teacher He was and is. No person can find a mistake in their writings, none can find a mistake in their becoming educated for the purpose of making mankind happier and the world a better place in which to live.

No, I am not preaching, I can't, but I am convinced that education is the one sure way out, and I am more firmly convinced that the only way is the way He taught, doing it for humanity's sake and not for any other purpose, not forgetting that when we have done the job well, that "all these other things shall be added unto you".

CONTRIBUTOR No. 6123

More About Preventing Streaks in Making Mock Yarn

EDITOR COTTON:

The trouble that "CONTRIBUTOR No. 6424" is having in making a mock twist yarn that is not streaked* is nothing new and he should not feel the least bit dismayed at his results. We have all had the same experience.

I have made thousands of pounds of mock twist yarn but I have never made a perfect yarn yet, and I have never seen but two yarns that were what could be called anywhere near perfect. I saw two bobbins on two different occasions that were beautiful to look at, but I doubt if any very large quantity of them had been made. There are some terrible looking specimens of mock twist yarn on the market that serve their purpose. All of this does not help "CONTRIBUTOR No. 6424", but may put him in a receptive state of mind to know that he has opened a serious problem.

The best solution is to run his spinning with a very short draft and from a very even roving. Here is a very important kink: you cannot spin one colored roving with one white unless the white is in the same condition as the color. This means that the white raw stock must be wet out in the dyehouse with the same penetrant that is used for the color, and then dried. Of course the reason for this is obvious—the cellulose having been removed from the fibers in dyeing, causes them to draw differently from raw white cotton.

The cotton used must be very even staple to begin with, and then well opened and thoroughly mixed. Light shades of raw stock colors make the best yarns, but dark shades are not too serious, if the stock is not pig-tailed or left harsh or sticky. After dyeing it must be uniformly dried, so the moisture content will not vary in the roving. The processes up to the spinning must be closely watched, to insure as near perfect roving as possible. In order to get a perfect roving do not try to cut out any process of drawing, and be sure all rolls are set correctly for the staple. Do not try to run two colors on a frame, unless they size very closely together, with the idea of correcting any difference at a later process, because that will change the effect even though the final rovings are equal in size. Put in enough processes of roving so the spinning frame draft will not be over 6, and none of the previous drafts excessive.

All leather top rolls must be in perfect condition. At the spinning frame, it helps a little to bore an extra hole in the roving guide rod so the two rovings that spin together are drafted separately and come together at the front roll.

When all these precautions have been taken "CONTRIBUTOR No. 6424" should get a fairly even yarn, and if he can add or combine any suggestion of his with these, I believe many readers of COTTON would be glad to have them.

CONTRIBUTOR No. 6444

*The question referred to appeared on page 83 of November COTTON. Three previous answers were published on page 85 of the January issue.—THE EDITOR.

Trouble With Filling Breaking on the Change

EDITOR COTTON:

We are having trouble with the filling breaking on the change. Will you publish this in your "HOW OTHER MEN MANAGE" department so that we may get some help?

Our looms are "K" model, running 156 picks per minute, using one filling fork, eight-inch bobbin, cast iron shuttle eye, top-holder on quill, 43s filling which is conditioned. We are matching the filling on this work.

CONTRIBUTOR NO. 6456

OLD BOB
An Example for Loom Fixers

Here is a genuinely human story which also reveals the writer's method of training weavers and loom-fixers . . . . . .

EDITOR COTTON:

Answering "CONTRIBUTOR NO. 6435," page 83, January COTTON, as to training loom fixers and weavers:

Whenever I get to thinking about loom fixers (and since business has picked up who hasn't been thinking about them?) I invariably call to mind Old Bob. It has been almost ten years since I last saw him, but I can picture him now as he looked then, with his jaw poked out with a half plug and his faded overalls with one leg shorter than the other. Old Bob was a character and the best loom fixer it has ever been my pleasure to watch fix a loom. In the four years I knew him I only saw him hurry one time and that was to catch the paymaster who had missed him while paying off the others. Also, I never saw him behind with his work and yet he never seemed to be working very hard. There were fixers on the same size job as Old Bob's, and some of them seemed to rush around all of the time and others could be caught loafing at times with their jobs suffering for it. But Old Bob's job stayed "caught up" and his production figure was the kind you enjoy looking at.

Naturally, I tried to learn the secret of his success as a loom fixer. To hear him tell it, there was no secret. His idea was that there are two kinds of people on earth—those who can be loom fixers and those who can't. We tried to train our learners and new loom fixers on the job next to Old Bob's and it never took him over a week to say that a man could or could not become a fixer. When he decided that a new man could make a good fixer we let him stay on and Old Bob developed him into a good fixer. I don't remember a single failure. Some of the men he turned down were tried on other jobs next to good fixers and I don't remember one that was successful.

My impression of Old Bob was gained while I was a very young man. However, I am still young enough to be loyal to his memory and he will always be the best loom fixer to me. I think the description of him fits a large number of loom fixers working in the mills today. I know it would help any loom fixer to follow the practices of Old Bob. For one thing, he had been fixing over 30 years. He always said it took him seven or eight years to get to the point where he could fix a loom and do it more good than harm. And that is one thing that present day fixers try to get away from and it just can't be done. True, some men develop faster than others, but experience is the best teacher and as Old Bob said, "Fixing is about 10 per cent and knowing what to fix is about 90 per cent." Old Bob watched his weavers, and somehow the best weavers seemed to be on his job. If they suited him, he helped them, but a sorry weaver or a lazy weaver didn't stay on his job. He saw to that. One time he remarked to me that many a poor loom fixer was getting by because he had a good set of weavers and he had seen some pretty good fixers lose out because of no-account weavers.

Walking through the mill today I saw two fixers standing around not doing anything. Their jobs were caught up as far as warps out or flags were concerned. That was another thing about Old Bob—while I never saw him in a hurry, I never saw him standing around. He was always doing something—either tightening a nut or changing a tension or any of a great number of things that always need doing even on the best jobs.

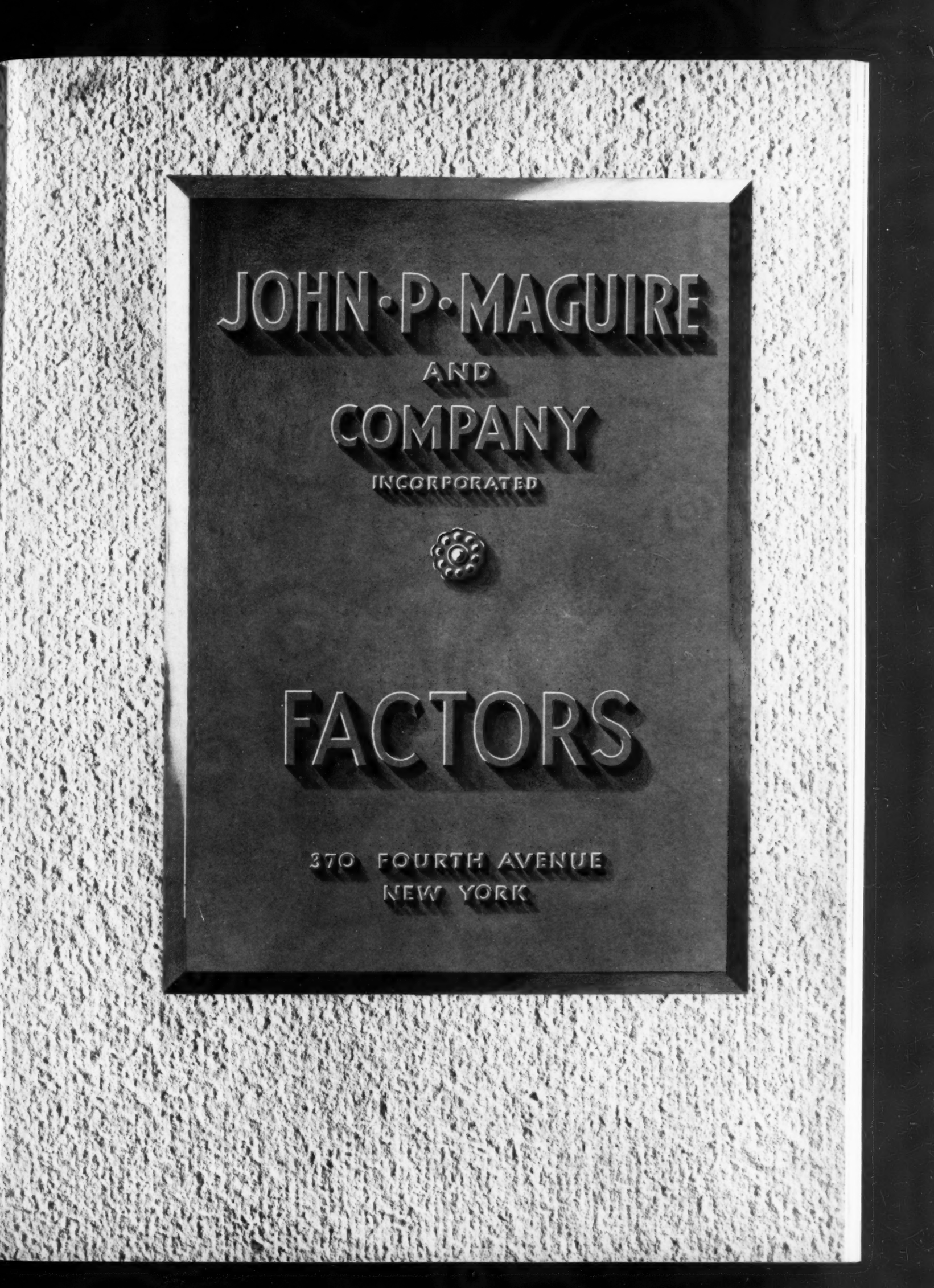
Frequently I see fixers set a warp in a loom and tie it in without so much as glancing at the under parts. Old Bob always went over his bearing caps, treadle rolls, cams and other parts and made these right before tying in the warp.

The reason for talking about Old Bob is that his memory has helped me work out an answer to the scarcity of good loom fixers. During the past few months we have been unable to obtain good loom fixers from the outside. We were starting up more work and it was imperative that loom fixers be obtained. What we have done is pick out the loom fixers that are present-day Old Bobs. In between these men's jobs we have placed local men taken from weavers, filling haulers, battery hands jobs as fixer learners. It usually takes two of them to keep up one job at first but it is surprising how quickly the man who will finally make a loom fixer can hold down a job if he is next to an "Old Bob". We don't claim that there are no disadvantages or that there is not some expense involved. We do think that these local men will be well worth the trouble and expense as workers who will stay with us in the future. Most of us have depended on picking up fixers as we need them. Now that they are not available we must pay for our neglect in not training our men in the past by training them now and keep this in mind for the future.

There is some shortage of good weavers. We are putting local folks, preferably battery hands and smash hands, on weavers' jobs, and here again a good loom fixer can be very helpful.

The problem is apparently with us today, and the solution, we believe, lies in training local folks who can be expected to stay and not drift off looking for "green pastures".

CONTRIBUTOR NO. 6445


JOHN·P·MAGUIRE
AND
COMPANY
INCORPORATED
FACTORS
370 FOURTH AVENUE
NEW YORK

ANNOUNCING

the organization of

JOHN P. MAGUIRE & COMPANY

INCORPORATED

370 Fourth Avenue, New York City

New York Life Building

John P. Maguire and Associates offer to the Textile Industry a complete factoring service by an organization thoroughly experienced in the financial, credit, and merchandising problems faced by those it seeks to serve.

Service includes checking of credits, cashing of sales, and assuming the credit risk.

JOHN P. MAGUIRE
FREDERICK H. WANDELT
JOHN H. JEPHSON
HOWARD J. STIEB
SNELSON CHESNEY
WILLIAM H. BISCHOF
LOUIS J. MORAN
FRANK MAGUIRE
ROBERT B. MATTHEWS
WILLIAM A. MURRAY
LESTER PRINK

•

SOUTHERN REPRESENTATIVE

TAYLOR R. DURHAM

First National Building, Charlotte, North Carolina

CORRESPONDENCE INVITED

My Experience with Spraying Oil on Cotton

EDITOR COTTON:

Being an ardent advocate of the use of oil spraying on cotton, the writer feels it somewhat of an obligation, considering the benefits he himself has derived from this practice, to pass his experience on to others.

There are perhaps many readers of COTTON who would like to know just why and how we are benefitted by the use of the oil spray on cotton. One might ask the question, "Why should I use an oil spray on my cotton; how do I know that I am benefitted by using it?" But the most important question arising is this: Is there a monetary return on the investment?

When I first began to use the oil spray system I did not know anything about it, for a certainty, whether it was really essential or not, so I just took another man's word in regard to its merits, and, thanks to Providence, I stumbled onto something really worthwhile. If there is anyone who doubts my sincerity in what I have to say in this contribution to the "HOW OTHER MEN MANAGE" department, I shall be glad to have him take me to task.

All overseers know what a problem it is to make an accurate test of the finished product for breaking strength, yarn variation, waste percentage or moisture content; especially when using several different grades of cotton we are likely sometimes to fool ourselves, because of the climatic conditions, the different kinds of cotton, the blending of the stock at the cotton bin and numerous other things. When making a test to ascertain some specific thing, an accurate test, such as I have just mentioned, can only be made in the laboratory by one who is competent to do it and where there is the proper equipment.

The most accurate test of the oil spraying system by the writer was made after he had been using it for several years. Through the neglect of someone, it was discovered, to our surprise, that we were completely out of oil, and, believe me, we were cured by that one experience. We had not realized until then what a great help the oil spraying had been. The operatives began to complain about the dust; the work did not seem to run normally, and there was present a noticeable amount of extra fly and lint in the machine creels throughout the mill. We went so far as to spray water on the cotton in the place of oil, but the water did not show any effect after it passed the first fan section on the first cleaning machine.

Now there was one particular grade of cotton that we have used that seemed as if it had lost its waxy walls, in other words, it appeared to be dry and harsh, just as if it did not contain any moisture at all. It was discovered that oil sprayed on this particular class of cotton would restore its natural life; give it a more fluffy texture and also eliminate the so-called static at the web on the card which beforehand was caused by the dry harsh texture of the cotton fibers.

There is another important question to be asked in regard to the yarns spun from cotton sprayed with oil, that is, does the finished product retain a certain percentage of the oil sprayed on the cotton? The writer feels that he can safely say that it does, although he has never made an accurate test as to what percentage of the oil sprayed on the cotton remains in the finished product. He does know for a certainty, however, that when the oil spray system is in use the dust and lint are greatly lessened.

We do not think that we would be exaggerating to say that the dust and flyings were eliminated by 75 per cent, and we have proved this by spraying water, instead of oil, on the cotton. The results were nothing to be compared with that of the oil, because the oil showed results on each machine throughout the mill to the finished product; whereas, the water was only effective to the first fan section on the first cleaning machine. This proved to me that the air current on the fan section vaporized the water content of the cotton to such an extent that it was not effective beyond this point. It was obvious, that, according to the law of averages, a certain percentage of the oil sprayed on the cotton was retained in the finished product.

Now we will ask this question: What becomes of the dust in the cotton if 75 per cent of it is eliminated by spraying the cotton with oil? We shall answer that question by asking another one. Where does the dust of the fields go after a shower of rain?

With regard to short fibers and lint, we are all aware of the fact that they are eliminated throughout the mill when the cotton is being sprayed with oil. Now just what becomes of these short fibers after the oil has been sprayed on the cotton? So far as we know this fact has never been ascertained.

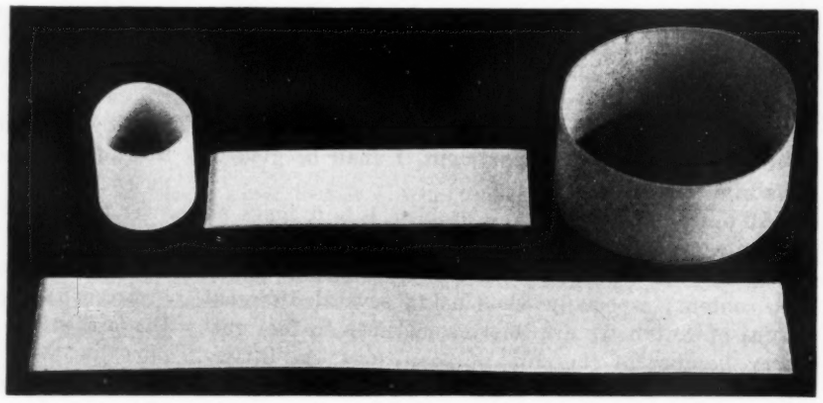
Before going into further details regarding this question, we would like to mention here that we realize that this is a big question and are frank to say that we are speaking theoretically. Now for the foundation of this theory. The writer would like for all concerned to take an oil can and pour a continuous stream of ordinary lubricating oil across the lap of cotton just before it enters under the feed roll at the back of the card and notice the results at the web at the front of the card. Those who do this will have a better understanding of the matter; they can readily see that a procedure of this nature would be detrimental to the quality of the product, but the proper amount of the right kind of oil at this point would be beneficial to the work. To better illustrate the subject, we will speak of the difference between the number of wire used for the cylinder and flats as well as for the doffer. We are aware of the fact that the doffer and the flat wires are much finer in number than that of the cylinder; the reason for this difference in the number of wire used is to give the doffer and flats a better opportunity of holding the fibers over that of the cylinder during the carding operation. Then it can readily be seen that by following the procedure outlined, oil sprayed on the cotton would be an aid in giving the flats a greater tendency to hold the fibers longer to come under the carding action of the cylinder, and, it is the writer's belief, that this is the reason why the flat strips produced from oil-sprayed cotton are heavier than those produced from cotton that has not been sprayed with oil, due to the fact that the oil gives the flats a better grip on the

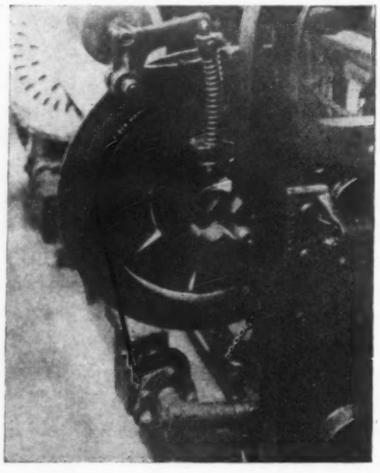
MOCCASIN BRONZE BARS

Now available in all sizes, both rough or machine turned and centered,—made from the same bearing material as the nationally known Moccasin Bushings.
Send for new wall card showing sizes of finished bushings and bars.
MOCCASIN BUSHING COMPANY, CHATTANOOGA, TENN.

TEXTILE APRON CO.
905 SOUTH MAIN STREET,
EAST POINT, GEORGIA

WE are equipped to furnish long draft aprons for all purposes. Workmanship and materials guaranteed. Send us samples of your aprons and we shall be pleased to quote you prices.





The Perfect Let-Off

Why put up with the antiquated chain or rope methods of let-off, with their expensive and messy use of graphite or oil which cause seconds? Many mills have modernized at this point with the

F-M-C ASBESTOS FRICTION LOOM LET-OFF

(Patent Applied For)

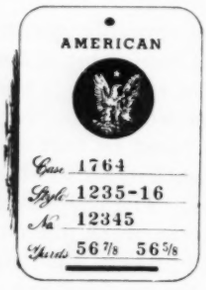
which runs smooth and assures an even let-off, improves quality of cloth, reduces seconds, lasts longer than old style frictions, requires no oil or graphite, is not affected by climatic or humidity conditions, eliminates bad start-ups, does not score or wear beam drums and is much more economical per yard of cloth produced. It comes complete, ready for attachment.

Full information and prices sent gladly on request. Write us today.

F-M-C Asbestos Brake Tape for loom brakes, ribbon and silver lappers, extractors, warpers and under picker-head blocks. Last longer than cork, leather or other types of brake. Not affected by oil, grease or humidity. Write for sample.

F-M-C Asbestos Even Tension Slasher Cord is another product that will save you money. Made in ¼", 5/16" and ⅜" diameters. Write for sample.

FIBER MFG. CO.
Asbestos Products for the Textile Mills
NEWTON, NORTH CAROLINA



The New
AMERICAN SPEED SET
GEAR CONSTRUCTION
NUMBERING MACHINES
Designed Especially For
MARKING TEXTILE MILL TAGS, TICKETS, LABELS, ETC.

Modern textile merchandising demands CLEAR, EASILY READ piece, lot and case numbers, size and yardage lengths, etc. Supply this demand and use the new American Speed Set Gear Construction Numbering Machines. Such numbering with Speed Set machines can be done quickly and easily. Numbers change instantly with touch of fingers and ANY COMBINATION OF NUMBERS can be quickly obtained. All-steel wheels, deeply engraved figures, self-inking.

Eliminate errors and see that your tags, tickets, labels, etc., are attractively and legibly numbered the SPEED SET way. WRITE TODAY FOR FOLDER describing these new machines used in Cotton, Woolen, Hosiery, Knit Goods, and Dyeing and Finishing plants.

American Numbering Machine Co.
ATLANTIC & SHEPHERD AVES., BROOKLYN, N. Y.

fibers and in turn the short fibers that are not long enough to reach the carding action of the cylinder wire continue to adhere to the flat wire until they are removed by the stripper comb.

T. R. (N. C.)

How is the Twist Multiple Figured?

This man also wants discussion on the relative merits of up-stroke and down-stroke beaters in pickers . .

EDITOR COTTON:

Please put the following questions in your "HOW OTHER MEN MANAGE" department:

1. How is the twist multiple for yarns figured? I know we all have the standard twist multiple to go by, but I would like to know how the figure was arrived at the first time.

2. What is considered the best twist multiple in 30s warp yarn, spun from 1 1/32-inch Middling western cotton, to get the best results in both the spinning and weave rooms?

3. Will the up-stroke or down-stroke beater in pickers give the best cleaning result? Why?

CONTRIBUTOR No. 6450

Answers to Spinning Questions

EDITOR COTTON:

In answer to the questions by "CONTRIBUTOR No. 6440" on page 89 of the January issue of COTTON, let me mention some of the causes for his troubles:

First: Some of the most common causes for ropy filling: On the spinning frames—soft and badly built bobbins are caused by slack bands, short taper, stuck lifter rods, worn pitman rolls, pitman rolls stuck up, worn cams and chain pulleys—all of which govern the traverse of the ring rail; worn quills or bobbins, vibrating spindles, travelers too light, and too little humidity. In the weave room—shuttle boxes too loose, power of pick too great, and too little humidity.

Second: It is better to run the ring rail *down fast* and *up slow*. It requires less power, and running the ring rails in the reverse order occasionally results in broken ring rails unless some provision is made to prevent this.

Third: The life of a traveler depends largely on the speed, twist, condition of rings, type of traveler used ,temperature and humidity, and counts of yarn being spun. Travelers should be changed when they become worn and it is usually after two weeks of day and night operations.

Fourth: An end breakage of 31.25 per 1,000 spindle hours is considered good. The low front roll speed of 104 r.p.m. is perhaps responsible for this low end breakage. It is from ten to twenty per cent low. Many factors affect this, however.

Fifth: Under the conditions mentioned, 30s warp, a doffer can easily lift 1,050 bobbins per hour, or 50,400 bobbins per 48 hours, including the usual cleaning of ends and under-parts, and the changing of travelers. On counts coarser than 30s warp a doffer can lift about five per cent less bobbins.

CONTRIBUTOR No. 6458

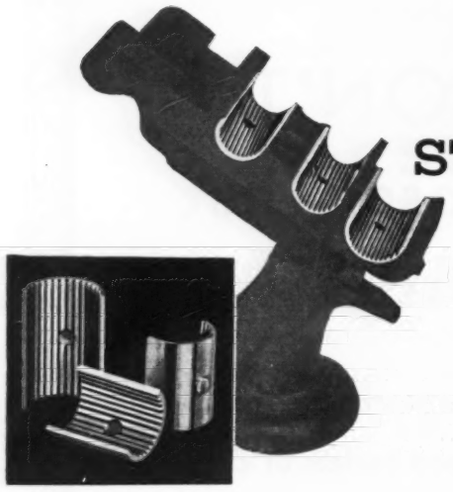
DON'T Lose That Order .....

Sales need not be handicapped by fear of credit losses. Factoring provides credit checking service that is prompt and liberal and also makes available as immediate cash, the net value of shipments as made.

We invite your correspondence

TEXTILE BANKING COMPANY
53 MADISON AVE.
NEW YORK

ELIMINATE OIL



on END STANDS . . . . *with*

JOHNSON GRAPHITED BEARINGS

● A development by Johnson engineers that provides new and unusual economies on your spinning frames. This in combination with two other recent developments—graphited saddles and graphited inserts for rolls—makes it possible to operate the entire top half of a spinning frame without oil.

This insert—a babbit lined graphited bearing is easily applied and firmly held in place. The babbit provides the ideal bearing surface, preventing wear on either the shaft or the end stand. The graphite provides the necessary lubrication.

The saving in oil, oiling operations, the elimination of damage to goods in process, and the increased machine performance will more than repay you for making these simple yet effective changes. Every development by Johnson Engineers is thoroughly tested and proven before reaching the market.

Let us prove—right in your mill—what these applications will do for you. Our service, counsel and assistance cost you nothing. The resulting economies will save you much.

Write today—there is no obligation.

JOHNSON BRONZE

530 S. MILL STREET • NEW CASTLE PENNA.

LIKE A WOMAN'S ENSEMBLE · *Co-ordinated Packaging*

A smart woman wears clothes that MATCH or blend! Your product may be packed as smartly, thus be given an appeal that will cause love at first sight. And many goods are sold on that FIRST IMPULSE! Let us create for you a pleasing ensemble effect of your packaging, having it uniform in color and design so it will be SELF-SELLING!

At the same time, our "CO-ORDINATED PACKAGING" can save you money in art, engravings and printing.

May we redesign your present packaging or suggest a style for any new lines? Let our Art Department design an ensemble for you. No cost or obligation, of course!

We also produce counter and window displays in addition to seals, bands and boxes of every description.

Old Dominion Box Co., Inc.
Lynchburg, Va.
Winston-Salem, N. C. Burlington, N. C.
Pulaski, Va. Asheboro, N. C.
Charlotte, N. C.

Old Dominion Paper Boxes

UNIVERSAL
STANDARD RING TRAVELERS

BEST MEET THE SPECIFIC REQUIREMENTS FOR SPINNING AND TWISTING

THE BOWEN PATENTED BEVEL EDGE TRAVELER
VERTICAL OFFSET TRAVELER
FOR
EVEN SPINNING AND TWISTING
VERTICAL NE-BOW TRAVELER
FOR
SILK, RAYON AND FINE WORSTED YARNS. A TRAVELER THAT WILL NOT UNTHREAD. ESPECIALLY DESIGNED FOR LUBRICATING RINGS.

Write For Samples and Particulars

U. S. RING TRAVELER COMPANY

PROVIDENCE, R. I. GREENVILLE, S. C.
AMOS M. BOWEN
Pres. and Treas.
Southern Sales Representatives
Wm. P. Vaughan, Greenville, S. C.
Oliver B. Land, Athens, Georgia
Torrence L. Maynard, Belmont, N. C.

"A TRAVELER FOR EVERY FIBRE"

A Debate on Twist in Roving

We feel that the many readers who have been following the articles on roving frames by Fay H. Martin will be interested in the appended exchange of comments concerning methods of figuring twist. We appear on the program solely as interlocutor.—The Editor.*

First, the comment, from J. G. Echmalian, director of the State Trade School, Manchester, Conn.:

EDITOR COTTON:

In the August, 1935, issue of COTTON there is a lengthy discussion by Fay H. Martin relative to Twist. It seems to me that Mr. Martin has gone into an unnecessarily lengthy discussion on a subject that can be solved very easily.

His method in comparison to modern teaching is very crude. Referring to his diagram on page 79, may I suggest the following solution for "twist":

Twist occurs between the front roller and the flyer.

We have a method of calculating twist by considering one turn of the front roll which will give the following revolutions of the spindle:

$$\frac{128}{75} \times \frac{48}{30} \times \frac{45}{30} \times \frac{43}{21} = 8.4 \text{ approximately.}$$

Since the front roll has a diameter of 1⅛-inch, the material delivered by the front roll will equal 1⅛-inch × 3.1416 which equals 3.5 approximately; therefore, the twist is equal to 8.4 divided by 3.5 which gives approximately 2.4, or as Mr. Martin figured, 2.37 turns of twist per inch. We may also add that the twist constant is equal to the present twist change gear of 30 teeth multiplied by 2.37 which gives a constant, as Mr. Martin has it, of 71.19. Twist constant is the twist per inch with a one-tooth twist change gear (theoretically).

May I also add that the above is not for the purpose of creating a formula. The writer abhors doing anything in textile work by means of "formulas".

Method of Solution is one that every practical man should know and use.

J. R. ECHMALIAN.

Now we have a reply from Mr. Martin:

EDITOR COTTON:

I was much interested in reading, from J. R. Echmalian, director of the Connecticut State Trade School, his *method of solution* of twist on a roving frame.

His method is good in principle for advanced students, but it lacks the reasons "why"; also, it contains too many approximations.

A student or a practical man should be taught to *figure correctly* first, then they can take care of the variations, of which there are many in the textile business, later.

$$\frac{128}{75} \times \frac{48}{30} \times \frac{45}{30} \times \frac{43}{21} = 8.387 \text{ instead of "8.4 approximately".}$$

1⅛-inch × 3.1416 = 3.534 instead of "3.5 approximately".

8.4 ÷ 3.5 = 2.4, which is correct.

It should read 8.387 ÷ 3.534, which equals 2.373 turns of twist per inch.

8.4 ÷ 3.5 = 2.4, which, multiplied by a 30 tooth twist change gear, gives a twist constant of 72.0 while 2.373 × 30 gives a twist constant of 71.19 and 71.19 is the correct answer.

In my article as published in the August, 1935, issue of COTTON on Twist, the constant number arrived at was 71.19; Mr. Echmalian also obtains the same constant 71.19 by a different method which is feasible.

This constant divided by the twist change gear being used will give the turns of twist per one inch of roving.

His answer is theoretical or figured twist, but *actual* twist in the roving as it is being wound upon the bobbin is always one tooth and most always two teeth less than the figured twist.

This is due to the "drag" of the roving as it passes down through the tube of the flyer and across the presser finger.

This "drag", if the tension is tight, will stretch out the twist.

Contraction of the roving while the twist is being inserted is supposed to offset this drag but it does not.

The kind of cotton being used and local conditions vary the *actual* twist from *figured* twist, hence twist multipliers.

I write in a "crude" and simple manner purposely, for a great many readers of COTTON have not had the advantages of a technical education.

FAY H. MARTIN

*The article prompting this discussion covered Twist, and appeared on page 79 of August 1935 COTTON. It was one of a series of four articles by Mr. Martin pertaining to the elements of a roving frame and its work. The other three were: Draft, page 79, July 1935; Lay, page 90, September issue; and Tension, page 84, November issue. Together they comprise a worthwhile, comprehensive discussion of the subjects. Copies of the set are available, at a nominal cost, so long as the supply lasts.—THE EDITOR.

Southeastern Section of AATCC Meets at Columbus

Jones re-elected chairman of this division; Lenher, Clayton and Johnson speak . . . . . .

THE SOUTHEASTERN SECTION of the American Association of Textile Chemists and Colorists met Saturday evening, February 22, in the Ralston Hotel, Columbus, Georgia. The meeting was presided over by C. A. Jones, Georgia School of Technology, and 82 representatives of plants and supply companies were present.

Several talks were given and a slide illustrated discussion finished the technical work for the meeting.

Waterproofing and Mildewproofing Cotton Goods

The first speaker on the after-dinner program was Samuel Lenher of the technical laboratory, organic chemical department, E. I. du Pont de Nemours & Company, Inc., Wilmington, Delaware. Dr. Lenher spoke on "Mildew-proofing and Waterproofing of Textile Fibers". His paper covered the value of increasing the life of the fibers in fabrics and the methods of so doing. It explained that mildew damage causes an annual loss of from twenty-five mil-

. . . HELPFUL BOOKLETS FREE . . .

Here is presented an important service used every month by hundreds of COTTON readers. The listings explain themselves. The Manuals, Reference Books and Catalogs, containing information of unusual value in mill construction and operation, will be sent you without obligation. Read through the list carefully. Then simply fill in on the coupon the numbers of those which interest you, and mail it to COTTON.

This service is for men engaged in textile manufacturing only. Requests received from those not in the industry cannot be handled.

Advertisers in this Issue Offer You . . . . . .

11. Whitinsville Rings—16 page illustrated booklet, describing ring manufacture, measurements, types, uses. How to determine flange sizes. By Whitinsville Spinning Ring Co., Whitinsville, Mass.

23. Practice of Rayon Sizing in American Mills, Raygomm, Lakoe Gum—Three booklets on products for sizing and finishing rayon and other textiles, presented by Stein, Hall & Co., Inc., 285 Madison Ave., New York, N. Y.

25. "Lupogum" and "Monopole Oil"—Two booklets on textile sizing and finishing products. Jacques Wolf & Company, Passaic, N. J.

28. Akron Belting—Practical rules and general information for users of belting with belting catalog. By Akron Belting Co., Akron, Ohio.

29. Continuous Card Stripper—A 20 page booklet describing in detail continuous card strippers, their advantages, the power required to operate, etc. Saco-Lowell Shops, 147 Milk St., Boston, Mass.

30. Lubrication of Textile Machinery—32 pages, illustrated. Data covering the economical lubrication of all textile machines. New York & New Jersey Lubricant Co., 292 Madison Ave., New York, N. Y.

38. Sleaziness in Full Fashioned Knitting—Illustrated survey with samples of fabric showing causes of sleaziness and methods to be employed in eliminating it.—By Textile Machine Works, Reading, Pa. (This company also issues parts catalog for Reading full fashioned machines with general information on subject of full fashioned knitting.)

55. Interpretation of Analysis for the Layman—An eight page booklet explaining what the various items used in fatty oil and sulfonated oil analysis mean, enabling the ordinary textile man without chemical education to interpret the various chemical analyses. National Oil Products Co., Harrison, N. J.

62. Rubber Products for the Textile Industry—A 40 page booklet giving a wealth of information on the proper selection, installation and operation of rubber belts, together with charts, showing horsepower rating, pulley sizes, V-belt sizes, also information on all types of hose and rubber covered rolls used in the textile industry. Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc., Passaic, N. J.

64. Efficiency and Performance of SKF Roller Bearing Spindles—A twelve page booklet showing the advantages in power consumption, increased production, savings in lubrication, increased yarn breakage strength to be secured through roller bearing spindles. SKF Industries, Inc., Front St. and Erie Ave., Philadelphia, Pa.

65. Bulletin No. 500, Cooper-Hewitt Industrial Illumination—booklet explaining in detail the importance of good lighting and the necessity of proper quality as well as proper quantity of light. General Electric Vapor Lamp Co., Hoboken, N. J.

66. Dronsfield's Patent Portable Auto-Feed Needle Point Grinder No. 176—describing a new departure in card grinding—John Hetherington & Sons, Inc., 250 Devonshire St., Boston, Mass.

69. Monel Metal Equipment for the Textile Industry—A 50 page buyers' guide and catalog with more than 100 illustrations of various items of monel metal dyehouse equipment. International Nickel Company, Inc., 67 Wall St., New York, N. Y.

70. Fafnir Ball Bearings for One Process Pickers—outlining the advantages of ball bearings in guaranteeing smooth, accurate motion, particularly on eveners, as well as uninterrupted production, ease of operation and cleanliness of bearing units throughout the one-process pickers. Fafnir Bearing Company, New Britain, Conn.

72. The Merrow Butted Seam—A 16-page booklet defining and illustrating the Butted seam, describing its properties and outlining some of the advantages to be gained by its use in textile fabrics. The Merrow Machine Co., Hartford, Conn.

77. Bulletin S 200—Illustrating and describing the new Reeves Variable Speed Drive for spinning and twister frames, explaining its many distinct advantages and giving charted results of exacting tests. Reeves Pulley Company, Columbus, Indiana.

88. Dayton Cog Belt Catalog—A 32 page booklet full of vital information on power drives, plainly and simply assembled and arranged so that anyone can select the proper standard drive for any condition. It also provides data for the calculation of drives where acquired. The Dayton Rubber Mfg. Co., Dept. C-11, Dayton, Ohio.

92. Silicates of Soda—A review of the properties of silicates of soda and their various uses. Philadelphia Quartz Co., 121 S. Third St., Philadelphia, Pa.

93. Metso—Describing this industrial cleanser which has wide use in industrial cleaning of metals, floors, etc., and is used in kier boiling, silk and rayon degumming. Philadelphia Quartz Co., 121 S. Third St., Philadelphia, Pa.

94. New Development by Onyx—Eight page booklet describing and giving uses of new developments in sulphonated aliphatic compounds . . . called Aliphatic Ester Sulphate and Glyceryl Sulphates. Onyx Oil & Chemical Co., 15 Exchange Place, Jersey City, N. J.

95. Onyx Processing and Finishing Compound Catalog—A thirty-two page booklet listing and describing entire line of processing and finishing compounds, covering every process on all types of fabric. Onyx Oil & Chemical Co., 15 Exchange Place, Jersey City, N. J.

102. White and Light Shade Cotton Fabrics Dyeing and Finishing. National Oil Products Co., Harrison, N. J.

103. Throwing Rayon Crepe. National Oil Products Co., Harrison, N. J.

104. Warp Sizing. National Oil Products Co., Harrison, N. J.

105. Mildew Prevention. National Oil Products Co., Harrison, N. J.

106. Cotton System Warp Sizing on Multiple Cylinder Machines—a folder showing the advantages of this type of machine in making warps of acetate and other synthetic yarns and spun silk.—Charles B. Johnson, Paterson, N. J.

107. Complete Information on Alemite Lubrication. Showing how costs can be reduced through proper lubrication. Alemite Corp., 1828 Diversey Blvd., Chicago, Ill.

109. Some Properties of Starch and Dextrine—Explaining certain fundamental properties of starch and its derivatives and their action when heated and agitated. Stein, Hall & Co., Inc., 285 Madison Ave., New York City, N. Y.

110. 3-In-One Oil for Industrial Uses—showing the many industrial uses and advantages of this oil. Three-In-One Oil Co., 70 Varick St., New York, N. Y.

116. Arcy—Telling in an interesting way the story of Arcy, which completely liquefies ordinary thick boiling pearl starch, and its many advantages. Drake Corporation, Norfolk, Va.

117. Anti-Friction Bearings as Applied to Spinning, Drawing and Twisting Frames—This bulletin shows with detailed drawings how a simplified design of roller bearing applications is made to replace the plain babbitt bearings and lists the advantages that are gained. It deals primarily with better continuous production and in consequence freedom from equipment care and repairs. Hyatt Roller Bearing Co., P. O. Box 476, Newark, N. J.

119. The World's Finest Sewing Machines—a condensed catalog giving details of the various Willcox & Gibbs sewing machines. Willcox & Gibbs Sewing Machine Co., 658 Broadway, New York, N. Y.

120. Goodyear Mechanical Rubber Goods Catalog—40 page catalog giving practical information and tables helpful in the selection of the proper belting, hose or packing to suit the requirements of the mill. Goodyear Tire & Rubber Co., Akron, Ohio.

121. Engineered Packages for the Textile, Dry-Goods and Apparel Industries—Showing the savings to be made through the use of properly engineered packages of corrugated fibre in the shipping of yarn, woven and knitted products. Hinde & Dauch Paper Co., Sandusky, Ohio.

122. Water Filters and Filtration Equipment—Containing complete description of the chemical processes involved in the coagulation and precipitation of foreign matter, the removal of iron, oil, manganese, from water and the production of clean water suitable for the textile industry, together with tables of specifications for standard filters, and information showing the extra profits to be made by the mill through reduction in costs and process difficulties, through removal of undesirable impurities in water. Permutit Company, 330 W. 42nd Street, New York, N. Y.

124. New Condensed Catalog on Ball Bearings and Power Transmission Units—Combines all of the information and the industrial uses of radial ball bearings as well as the Fafnir power transmission line of wide inner ring and ball bearings. It gives complete information, interchangeability tables, dimensions, prices, etc. Fafnir Bearing Company, New Britain, Conn.

127. Vim Short-Center Drive with Vim Tred Leather Belting.—16 page booklet outlining the special requirements of belts for short-center drives and the proper adjustment to give the highest efficiency. E. F. Houghton & Co., 240 W. Somerset St., Philadelphia, Pa.

128. Houghton's Hand Book for the Hosiery Dyer—This book contains the result of 69 years of experience in research and development of processing materials for the textile industries, together with a wealth of other data useful to every hosiery dyer. E. F. Houghton & Co., 240 West Somerset St., Philadelphia, Pa.

130. Three New Textile Scouring Agents—This 32-page book gives many valuable formulas for the use of Houghton's Wonder Powder—a new type of colloidal detergent—in fulling, scouring and finishing nearly all types of woven and knit goods. Also contains several pages of valuable reference and conversion tables. E. F. Houghton & Co., 240 W. Somerset St., Philadelphia, Pa.

131. Houghton's Leathers for the Textile Industry—This valuable handbook contains 88 pages of data on the proper selection and application of all types of textile leathers, including belting, special spindle belts, round leather belts, loom leathers, mill strapping, leather aprons, etc.—E. F. Houghton & Co., 240 W. Somerset St., Philadelphia, Pa.

132. Houghton on Sizing Products—Thirty-two pages of valuable information on sizing of cotton warps and yarns. Gives detailed information on how to conduct sizing tests and contains tables for recording results. It describes the requirements of different types of yarns and gives actual formulas for producing desired finish. E. F. Houghton & Co., 240 W. Somerset St., Philadelphia, Pa.

134. STA-PUT Lubricants—A brief description of an entirely new type of tough film lubricants which not only gives greater protection to bearings but eliminates oil drip and reduces lubrication costs. STA-PUT Lubricants are made in grades to suit all types of textile machinery. E. F. Houghton & Co., 240 W. Somerset St., Philadelphia, Pa.

135. The Pick Method of Weaver Wage Payment—A manual of practical information describing methods to be followed in using Pick Counters; suggested forms, and tables included. Durant Manufacturing Co., 1932 No. Buffum St., Milwaukee, Wis.

139. Textile Detergents—Theory of the use of alkalis and control of pH.—This 32 page booklet explains in simplified manner for the benefit of the layman the chemical processes that take place in using textile detergents in the finishing of textile goods. It contains many useful tables and data. Detergent Products Corp., Peachtree Bldg., Atlanta, Ga.

140. Textile Machinery—Improvements in Design and Methods of Lubrication. A discussion of the problem of lubrication of textile equipment covering operating conditions and factors affecting and affected by lubrication. Card Room Operations, Twisting and Spinning Machines, Silk Throwing, Looms, Knitting Machines, etc., covered. Available in copy of June 1934 issue of "Lubrication." The Texas Company, 135 E. 42nd St., New York City.

141—V-Belt Engineering Data Book—Over 50 pages of pertinent engineering information including data on selecting a V-Belt drive design of special V-Belt drives, numerous standard tables, charts and belt and sheave list prices. Manhattan Rubber Manufacturing Div. of Raybestos-Manhattan, Inc., Passaic, N. J.

143. Winders and Winding—Describing the various processes in the preparation of cotton, woolen and silk yarn and illustrating and describing the different types of Universal winders and the various attachments to suit the particular winding requirements of the various branches of the textile industry. Universal Winding Co., 95 South St., Boston, Mass.

147. Let's "CAN" The Oil Can—describing permanently sealed bearings for life, and for higher speeds and temperatures single seal ball bearings which have to be lubricated only from one to three years. New Departure Mfg. Co., Bristol, Conn.

148. Leather Packing—.28 page booklet giving timely hints on the proper selection and installation of leather packings, the various types available, sizes and prices. Alexander Brothers, Inc., 406 N. Third St., Philadelphia, Pa.

150. Engineering Data Book on Mechanical Rubber Goods—21 pages of useful information and engineering data, designed to simplify the selection of belting, hose and other mechanical rubber goods for industrial service, including a review of belting requisites for a wide variety of uses as well as helpful tips on installation procedure. B. F. Goodrich Co., Mechanical Division, Akron, Ohio.

152—Plant Checkup List—Crane Co., 836 South Michigan Ave., Chicago, Ill.

154—Johnson Bronze Bulletin No. 340—showing over 600 sizes Johnson general purpose bronze bushings. Johnson Bronze Co., New Castle, Pa.

155. Link-Belt Catalog 1274 on the P.I.V. Gear—giving details of this positive variable speed control. Link-Belt Co., 910 South Michigan Ave., Chicago, Illinois.

CONTINUED ON PAGE 112

lion to seventy-five million dollars. Two remedies are available to prevent damage to cloth by mildew, that is keeping the environment unsuitable for the growth of the fungi and the use of antiseptics that are capable of destroying the fungi. As the first is an impractical method which would require the refrigeration of warehouses where cloth is stored, or some similar arrangement, the second, that of using antiseptics, is used to advantage. Dr. Lenher then went into a discussion of the various processes used to prevent mildew and gave an explanation of the practical uses of some chemical products (antiseptics) manufactured by his company for this purpose. These include Shirlan (salicylanilide) and products based on it—Shirlan Extra, Shirlan D, and Shirlan A—which are readily applicable to textile materials at any manufacturing stage, and which meet a wide variety of requirements.

He next explained waterproofing as carried out with Aridex WP, a stable wax emulsion developed by his company. This chemical is suitable for treating silk, viscose rayon, cellulose acetate, linen, wool, cotton, and grass textiles. It was also explained that it does not color the fabric nor impart an odor to it. One example was given where automobile top fabrics that had been treated with Aridex WP had withstood weathering for four months without any material decrease in water-repellency.

When Dr. Lenher had finished speaking, evidence of interest was shown by the number of questions put to him by members of the association.

The Sanforizing Process

W. L. Johnson of the American Moistening Company, Providence, R. I., next gave a short paper explaining the "Amco Dampner". This device, for use as a preliminary process in Sanforizing, gives an evenly distributed application of water vapor and operates entirely on water pressure. Mr. Johnson also stated that it is desirable to have a pressure reducing valve with the dampner and that some manufacturers find it desirable to install a small independent pump for operating it.

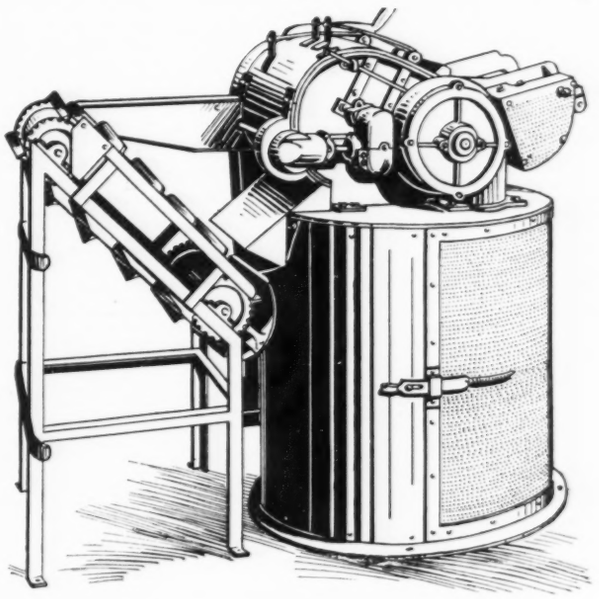
The concluding address was by H. D. Clayton, superintendent of Cluett, Peabody and Company, Waterford, N. Y., who spoke on "The Sanforizing Process" and illustrated his address by the use of lantern slides. Mr. Clayton carried the entire process of Sanforizing out in his talk.

Election of Officers

The officers for the ensuing year were elected and committees were appointed.

C. A. Jones, dean of A. French Textile School, Georgia School of Technology, Atlanta, Georgia, was re-elected chairman. H. W. Ormand, superintendent of the Thomaston (Ga.) Bleachery, was named vice-chairman; Robert H. Harris, dyer for the Spalding Knitting Mill, Griffin, Georgia, was made secretary succeeding W. Fred Crayton of E. I. du Pont de Nemours & Co., Columbus, Georgia, who was made treasurer. Charles B. Ordway, professor of dyeing at the Alabama Polytechnic Institute, Auburn, Alabama, was elected councilor. The sectional committee consists of M. T. Johnson, Hillside Plant of Callaway Mills, LaGrange, Georgia; R. A. Field, Jr., Newnan (Ga.) Cotton Mills; H. H. Field, Eagle & Phenix Mills, Columbus, Georgia; and Samuel L. Clement, Monsanto Chemical Works, Atlanta, Georgia.

This Machine
saves you money



THE TERMACO Roving Bobbin Cleaner will save you money in many ways. The efficiency and speed of the machine (cleans 3,000 to 3,300 bobbins an hour) are so great that the savings *in labor alone* are sufficient to pay for it—in many mills within a year.

ROVING WASTE. **Some mills have reduced their roving waste as much as 40% or 50% since installing THE TERMACO.**

LABOR SAVING. **The saving in labor comes from the transfer of work requiring no skill to the machine, and the more efficient use of skilled labor freed from time-consuming routine.**

WASTE REWORKING. **TERMACO reworks the waste as it cleans the bobbins.**

CUT BOBBINS. **The bobbins cut by hand-cleaning can be run through the machine, the splinters brushed off; then given a coat of thick shellac, they are usually good for continued use. Some mills have saved thousands of dollars through reclaiming cut bobbins in this manner.**

Let us make an investigation and report of what THE TERMACO will do in your mill. *Write us now.* There will be no obligation.

The TERMACO
ROVING BOBBIN CLEANER

THE TERRELL MACHINE CO., CHARLOTTE, N. C.

MR. LUTHER PILLING, Danielson, Connecticut, *Representative for N. Y., N. J., Pa., New England States, and Canada*

WM. T. TATHAM, LTD., *Rochdale, England, European Makers*

HELPFUL BOOKLETS FREE...

Continued from Page 110

156. Link-Belt Engineering Data Book No. 125—showing features and giving engineering data on Link-Belt silent chain drives. Link-Belt Co., 910 South Michigan Ave., Chicago, Ill.

157. Grading Rules and Complete Specifications for Laying and Finishing Maple Floors—Maple Flooring Manufacturers Association, 1794 McCormick Bldg., Chicago, Ill.

161. Fence—How to Choose It—How to Use It—book explains in detail how to chose a fence, determine values and prevent costly mistakes. Cyclone Fence Co., Dept. 4211, Waukegan, Ill.

163. Roto-Koner—Bulletin describing the new No. 44 Universal Winder, known as the Roto-Koner for winding knitting yarns, which has many new and distinctive features. Universal Winding Company, 95 South St., Boston, Mass.

164. Johnson Rotary Pressure Joints—Bulletin describing this rotary pressure joint which requires no packing, no lubrication and no adjustment, giving installation and maintenance instructions, types, sizes, dimensions and prices. The Johnson Corp., Three Rivers, Mich.

165. New Departure Speed Power Unit—Bulletin giving details of this compact, self-contained driver that gives a thousand different speeds at a turn of the wrist. New Departure Manufacturing Company, Bristol, Conn.

166. Better Cones The World Over—Bulletin describing the Universal No. 50 Winder for silk and rayon. Universal Winding Company, 95 South Street, Boston, Massachusetts.

168—The Tube-Tex for Tubular Knit Goods—Bulletin describing this modern machine which extracts, processes, dries, conditions and folds in one continuous operation, lowering costs, saving labor, power, space and waste. H. W. Butterworth & Sons Co., York and Cedar Sts., Philadelphia, Pa.

169. Tube-Tex High Speed Steamer and Finisher—Describing these new steaming and finishing machines for tubular knitted fabrics, which handle cotton, rayons, woolens and mixtures at speeds up to 45 yds. per minute, being unique in that patterns, designs and stripes are furnished straight and free from any distortions. H. W. Butterworth & Sons Co., York and Cedar Sts., Philadelphia, Pa.

170. Gates Textile Accessories—Showing the increased efficiency and economy to be secured through the use of Gates cone belts, evener belts, card bands and loom binder cushions. The Gates Rubber Company, Denver, Colo.

171. Design of V-Belt Drives—48 page booklet full of valuable tables and data showing the type, number and design of V-Belts that will give the greatest efficiency on each particular drive. The Gates Rubber Company, Denver, Colorado.

173. Over the Rough Spots—28 page booklet describing Stonhard resurfacer for repairing and resurfacing concrete, wood, brick and composition floor, making permanent repairs to badly worn surfaces. Stonhard Company, 401 North Broad St., Philadelphia, Pa.

174. Robertson Chain Link Fencing—giving details and specifications of Robertson chain link fencing, providing efficient and low cost protection for mill property. W. F. Robertson Steel & Iron Co., Elm & Second Sts., Cincinnati, Ohio.

176. Sonoco Products—A 60 page illustrated booklet giving descriptions, specifications and charts of the many Sonoco products, including: bobbins, cones, tubes, cork cots, roving cans, spools, rolls, etc. Sonoco Products Co., Hartsville, S. C.

177. New Advances in Loom Equipment—12-page booklet describing discoveries and advances which loom manufacturers have made in keeping pace with these discoveries down to the present time—non-technical, informative, amply illustrated. Emmons Loom Harness Co., Lawrence, Mass.

179. Improved Airplane Propeller Exhaust Fans and Ventilating Equipment—a 40-page catalog showing the important factors to be considered in a propeller type fan to secure the greatest efficiency, with data and tables showing fan capacity and details of each type and size of fan and views of typical installations. Propellair, Inc., Springfield, Ohio.

180. These Extra Cushion Cork Cots Offer Six New Advantages—a 6-page folder which tells the story of the new Armstrong's Extra Cushion Seamless Cork Cot from the viewpoint of the mill man. The folder describes HOW the new cot is of advantage to mills spinning cotton yarn; WHY it is better, and something about its method of manufacture, and also gives PROOF in the form of some tests that have been made with this new roll covering material. Armstrong Cork Products Co., Textile Division, 930 Arch St., Lancaster, Pa.

181. Eagle Penetration Roll—Illustrated pamphlet showing the advantages of the new Eagle Penetration Roll, made to fit in any type or model slasher size box, with complete description and suggestions for installation. Eagle Iron Works, Greenville, S. C.

182. M. & M. Hooks and Levers—Illustrated pamphlet descriptive of the M. & M. Hook and Lever, the latest improvement in weight levers. Illustrations show the construction of the lever and the importance of proper weighting of the top roll is stressed. M. & M. Textile Lever Co., P. O. Box 1552, Greenville, S. C.

183. Schieren-izing—describing leather belt manufacture from the selection of hides through the various processes to the final tests, also showing illustrations of belts with unusually long service lives. Chas. A. Schieren Co., 31 Ferry St., New York, N. Y.

184. Speed Control Handbook T-35—new reference book on variable speed control, said to be the most complete and helpful book on this subject ever published, 112 pages and more than 200 illustrations of interest to every production executive, purchasing agent, superintendent, overseer and master mechanic. Reeves Pulley Co., Columbus, Ind.

185. Dulux—The White Finish that Stays White—New book describing the new ten-point finish for factory walls and ceilings, the finish that stays whiter, stays cleaner and stands repeated washings. E. I. duPont de Nemours & Co., Finishes Division, Wilmington, Del.

186. F-7 Feeder Bulletin—Describing the better blending that is secured and the important cleaning operation that is added by using F-7 feeders in place of bale breakers. Saco-Lowell Shops, 147 Milk St., Boston, Mass.

187. The Wildman Single Head Full-Fashioned Hosiery Machine—Literature on request from the Wildman Mfg. Co., Full Fashioned Division, Norristown, Pa.

188. Form 374—This form enables you to gather your own cost data on your sewing machines and determine whether new Union Special Machines will show big savings. Furnished free by Union Special Machine Co., 400 No. Franklin St., Chicago, Ill.

189. Walker Steel Products—Eight page illustrated catalog descriptive of the Walker method of quickly, checking the efficiency of machinery. The improved one-unit switch case and pedestal for above or below floor installation, is discussed in a practical manner. Walker Electrical Co., 526 Means St., N.W., Atlanta, Ga.

190. Warp Conditioning Units for Synthetic Yarn Slasher—booklet giving full details will be sent free to mill men who write on their company letterhead. Chas. B. Johnson Co., Paterson, N. J.

191. The Bahnson Humiduct—bulletin describing Bahnson Humiduct system which combines humidifying, heating, ventilating and air conditioning all in one unit, will be sent free on request. The Bahnson Co., Winston-Salem, N. C.

192. Wood Tanks for Every Purpose—100 page illustrated catalog showing the advantages and lasting qualities of wooden tanks. Rubber-lined tanks for dyeing and other uses in the mill are illustrated and discussed in detail. Hauser-Stander Tank Co., Ammen Ave. and Spring Grove Ave., Cincinnati, Ohio.

193. Short Cuts to Power Transmission—72 page illustrated booklet containing all information needed in solving any ordinary belt transmission problem, informative material on belt joints and transmission practice and a quantity of useful tables and data. Flexible Steel Lacing Co., 4607 Lexington St., Chicago, Ill.

194. Accurately Checking Spindle Speed—A three page booklet describing the Strobotac, a tachometer operating on an entirely new principle for observing and measuring spindle speeds anywhere between 600 and 14,000 rpm. General Radio Co., 30 State St., Cambridge, Mass.

195. Never Buy Sponges in the Rain—Booklet outlining the importance of knowing the percentage of moisture in a given textile in the buying and selling of the same and in connection with the working of textile fibres in the process of manufacturing the goods, also showing different types of conditioning ovens for determining moisture content. Emerson Apparatus Co., 174 Tremont St., Melrose, Mass.

196. Economy of Diesel Engine Power—Bulletin No. 3030, 44 pages, illustrated, giving advantages of diesel power in industrial plants. Fairbanks, Morse & Co., Chicago, Ill.

197. Extra Life for Chain Link Fence—A folder telling about Bethanized Wire and explaining its advantages for mill and factory protection. Anchor Post Fence Co., Eastern Ave. and Kane St., Baltimore, Md.

198. The Perfect Loom Let-Off—Folder pointing out the advantages of the new asbestos friction loom let-off and giving specifications and price list. Fiber Mfg. Co., Newton, N. C.

199. Arctic Syntex A and T—A 57 page booklet describing the various operations in which Arctic Syntex, the newest fatty acid derivative, can be used. It contains many useful diagrams as well as the history of its development. It explains fully the unique and varied uses of Arctic Syntex in processing. Colgate-Palmolive-Peet Co., Jersey City, New Jersey.

200. New American Speed Set Gear Construction Numbering Machines—10 page illustrated booklet giving full information and details on special numbering machines designed for cotton, woolen, hosiery, knit goods and finishers of textile goods and others. If your tags, tickets and labels use style, piece, case and lot numbers, yardage length, etc., these new machines will solve your numbering problem. American Numbering Machine Co., Shepherd and Atlantic Aves., Brooklyn, N. Y.

201. How To Run a Lathe—160 page book on the care and operation of a lathe. Contains accurate descriptions of lathe practice and shot hints. 300 illustrations show all types of lathe work, including manufacturing operations and use of special attachments for particular jobs. Very helpful to textile machinists. South Bend Lathe Works, 425 East Madison St., South Bend, Ind.

202. 9-inch "Workshop" Lathe Booklet—32 pages containing valuable information to the manufacturer. Shows applications which can be made on this small lathe in manufacturing. Over 60 illustrations give examples of handling many types of jobs. South Bend Lathe Works, 425 East Madison St., South Bend, Ind.

203. The Last Word in Lubrication—Illustrated circular describing the modern OPTO-MATIC and DRIP-DROP Oilers. These modern lubricators are providing dependable service with definite economies in operation and maintenance in thousands of installations. Trico Fuse Mfg. Co., Dept. G, Milwaukee, Wisconsin.

COTTON, Grant Bldg., Atlanta, Ga.

Please send me, without obligation, free booklets described in the March issue of COTTON.

Fill in here numbers you select from both pages.....

.....

.....

Name .....

Firm name..... Position.....

Street .....

City & State.....

List Items You Want and Tear Out and Mail Coupon Now!

●

Please be sure to fill in your Firm's Name and your Position on the Coupon. This service cannot be extended to you unless this information is furnished.

Yes, They're New

. . . and they're just a few of many new and strikingly interesting patterns you can produce on the versatile **AUTOMATIC DOUBLE BUTT TUCK MACHINE.** Variety is the keynote in modern underwear design . . . and variety is what you get with this machine. It gives you a wider tuck fabric pattern range, increases your yarn scope, enables you to use lighter yarns than ever before. It is the answer to the demand for open wear materials. Why not take advantage of the opportunities it offers?

"This is the Scott & Williams Machine Age."

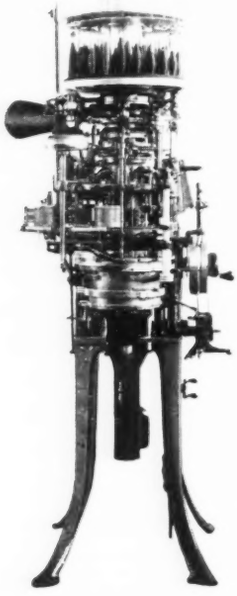
ESTABLISHED 1865

SCOTT & WILLIAMS

INCORPORATED

366 BROADWAY, NEW YORK, N. Y.

There is NO OTHER



STANDARD TRUMP
ESTABLISHED 1872

The STANDARD 80-W SHOG MACHINE is in a class by itself. There is no other machine on the market that offers so many new pattern possibilities and such a wide variety of unusual designs in the knitting of fine gauge men's half hose. The merchandise it produces will not only carry your staple business into new and larger fields, it will create valuable prestige for your mill. There are rich rewards in store for manufacturers who realize its advantages . . . and use them to build and maintain sales in the most desirable markets.

STANDARD-TRUMP
BROS. MACHINE CO., INC.
366 BROADWAY, NEW YORK, N. Y.

KNITTING SECTION

The Laboratory as an Aid to Knitting and Finishing

By William T. Leggis

Part Two—Continued from the January Issue

(This continues and concludes the discussion of how the laboratory may aid the manufacturing departments in the knitting mill, the first part of which appeared on page 93 of the January issue.—THE EDITOR.*)*

THE DYER has so many materials to work with that the chance of trouble is great, unless rigid control is maintained over all materials. Proper co-operation between the dyer and the laboratory can do much to minimize dyehouse troubles. Let us review the many materials the dyer has to work with and the part the laboratory plays in their control.

1. *Dyeing Machines:* A thorough knowledge of the material out of which the dyeing machine is made, particularly the lining, is of utmost importance. The effect of the machine upon the dyestuffs used, the ability of the machine to withstand corrosion, best method of cleaning, suitability for bleaching—all should be determined by the plant chemist. Calibration of the volume of all the machines is important in that it enables maximum loads to be run safely.

2. *Water Supply:* By far the greatest amount of material used in the dyehouse is water, and it is surprising how little attention is paid to it in many mills. The chemist should have a complete knowledge of the water supply. If it is from a city main supply, the complete record and analysis of the water can be had from the city water department. However, if the water is drawn from some small stream or pond, and reports are not available as to the composition of the water supply, it is always advisable to check up on it. The most important determination of the water supply for textile processes is total hardness. A convenient method to make this determination is given in "Analytical Methods for a Textile Laboratory," by Walter Scott, as follows:

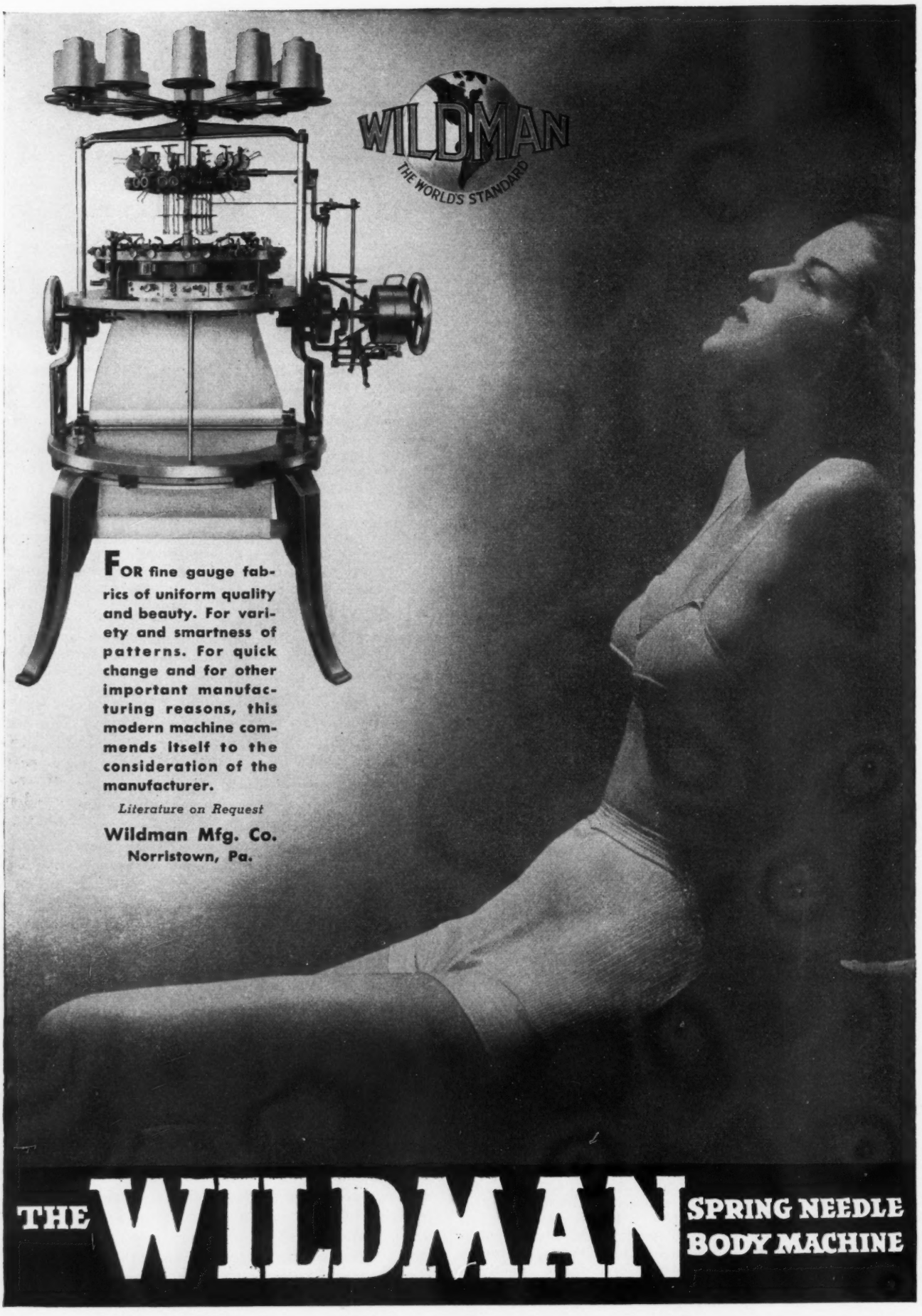
"The following solutions are made up:

In N/250 calcium chloride: .2 gram C. P. calcium carbonate are accurately weighed in an evaporating dish and dissolved in diluted C. P. hydrochloric acid. Evaporate to dryness on steam bath, redissolve in water and repeat evaporation three times. Dissolve final residue in distilled water and dilute exactly to 1000 cc.

2. N/250 soap solution: 30 grams of olive oil soap are dissolved in 400 cc. hot water. Add 50 cc. Hexalin. Dilute to 500 cc. An aliquot part of 25 cc. of this solution, diluted to 200 cc., prepares approximately N/250 soap solution. This solution is standardized against the N/250 calcium chloride by taking 10 cc. of calcium chloride solution in an eight-ounce glass-stoppered bottle and diluted to 50 cc. with distilled water. Soap solution is added ½ cc. at a time, shaking well after each addition. When a permanent lather is formed which lasts for five minutes, the end point has been reached. The water to be tested for hardness is titrated in the same manner with the standardized soap solution until a permanent lather is formed. A 50 cc. sample is used. Each cc. of N/250 soap solution required equals four parts per million of hardness, expressed as calcium carbonate. Seventeen parts per million of hardness equals approximately one grain hardness. If the water supply contains over 1½ grains of hardness, serious consideration should be given to methods of softening the water supply."

The difficulties and troubles arising from the use of hard water are too well known to dyers compelled to use untreated, unsoftened water. Dull shades, spotted dye lots, whites covered with limed soap spots, excessive use of soap, are all direct results of using hard water. True, excessive soap in the boil-off bath will prevent precipitation of limed soaps, but these will precipitate when dilution occurs in rinsing. Numerous preparations are available to prevent the precipitation of limed soaps, and should be thoroughly investigated. Calcium pyrophosphate is one of these products. This material has the property of combining with the various elements in the water which cause hardness, to form a water-soluble product and thus prevent precipitation of limed soaps.

If hardness is not too great, the use of a material such as this in conjunction with all wet operations using soap will prevent limed soaps. In the bleach bath, the presence of hard water is disastrous. The sodium silicate commonly used in peroxide bleaching is precipitated by the calcium and magnesium in the hard water, carrying down with it combinations of limed soaps and limed silicates. The formation of a grayish gum in the bleach bath is a good indication of hard water. Here again, in this operation, the incorporation of a material to prevent the precipitation of limed soaps and silicates is very advantageous. Possibly, incorporation in the bleach bath alone, or in a bleach bath and the first rinse, will take care of spotting due to hard water. Experimentation will show


WILDMAN
THE WORLD'S STANDARD
FOR fine gauge fabrics of uniform quality and beauty. For variety and smartness of patterns. For quick change and for other important manufacturing reasons, this modern machine commends itself to the consideration of the manufacturer.
Literature on Request
Wildman Mfg. Co.
Norristown, Pa.
THE WILDMAN SPRING NEEDLE BODY MACHINE

just in which operations the use of the material is necessary.

Occasionally, the water supply has considerable rust, either due to the city mains, or to the plant piping. The presence of this material is deleterious to silk fabrics. Iron slowly attacks silk fabrics and causes decreasing strength. Presence of rust in the bleach bath is very objectionable. Nothing is more unsightly on a pure bleached white than reddish rust stains. If the water supply contains rust, the water should be filtered by some means or other. A large filter can be installed for the entire water supply, or each water outlet can be fixed with a fine wire mesh filtering device to catch any rust entrained in the water supply. In an emergency, a make-shift filter can be had by tying several thicknesses of muslin over the water inlet to each machine. This method will catch a good deal of the solids in the water supply, including rust, but is only make-shift and temporary, and is no positive cure for the troubles due to rust. The ideal system is to have a zeolite water-softening device which will soften the water and filter out all solids at the same time.

3. *Dyestuff Standardization and Control:* Dyestuffs should always be under constant control. It is true that dyestuff manufacturers standardize their products carefully, but there is always the possibility of error. New shipments of dyestuffs should be carefully checked against old and against standard. The dyer will then be able to control more closely his formulae, and not have to go through the costly procedure of correcting a dye lot when a dyestuff "goes wrong". It is not unheard of to have the wrong dyestuff labeled and shipped by mistake. The detection of this error before the dyestuff reaches the dyehouse is of obvious importance.

Laboratory dyeings should be made under conditions approximating those in the dyeing machine—if a Monel metal machine, Monel beakers should be used; or if these are not available, and glassware must be used, dyeing should be made in the presence of strips of Monel metal. The various stainless steels and nickel alloys used in dyeing machines all have different effects on dyestuffs, and it is important that this fact is not overlooked when making laboratory dyeings. Ratio of water to silk, concentration of salt, concentration of dyeing assistants—all should be carefully observed. New sample dyestuffs should continually be checked and compared to those being used with a view of substitution if the money value is greater, and all the desirable properties of good color fastness to washing and light are present.

An important test for dyestuffs overlooked by many is the effect of sulphur dioxide. Hosiery is usually washed after each wearing and hung in a warm place to dry quickly. Very often they are hung near a coal stove or an oil stove. The sulphur in coal and more so in fuel oils, burns to form sulphur dioxide in sufficient quantities to affect the shade of certain dyestuffs. The sulpho-cyanine blacks are the worst offenders, turning to red in the presence of sulphur dioxide. A stocking dyed with a black of this type, dried in the presence of sulphur dioxide, or near a coal or oil fire, will dry up with large reddish-brown streaks. These streaks can be removed by rinsing in dilute luke-warm soap and ammonia.

The effect of hot pressing and moisture content of dyed fabrics should be carefully observed. It is preferable for colors used in hosiery to return to their normal shade rapidly after being pressed, in order that the dyer can be certain that his sample will not change appreciably after he has looked at it and added dyestuffs to bring it to the proper shade. A convenient method of conditioning samples after pressing is to steam them slightly immediately after pressing. This operation will bring the colors to as normal a condition as possible, and the dyer can feel sure that little further change will occur.

Sulfonated oils should be carefully analyzed for money value, fat content, organically combined sulphur trioxide, alkalinity, free fatty acids, and pH of solutions at concentration used in the dyehouse. In order to get uniform dyeing results, the pH of the dyebath must be uniformly controlled.

The various sulfonated oils used as dye assistants must be uniform in order to have formulae work out accurately. Different brands of sulfonated oils can vary considerably in pH, and it is unadvisable to change from one brand to another unless the results produced by it are first determined accurately in the laboratory.

Phi Psi to Hold National Convention in Charlotte

The annual convention of Phi Psi, the international textile fraternity, will be held at the Hotel Charlotte, Charlotte, N. C., on Friday, Saturday and Sunday, March 27, 28 and 29. This is the national convention, and between 150 and 200 delegates from all parts of the textile manufacturing area, North and South, will attend.

Registration of delegates and getting acquainted will constitute the features of the first day, while Saturday, March 28, will constitute the day of the main events.

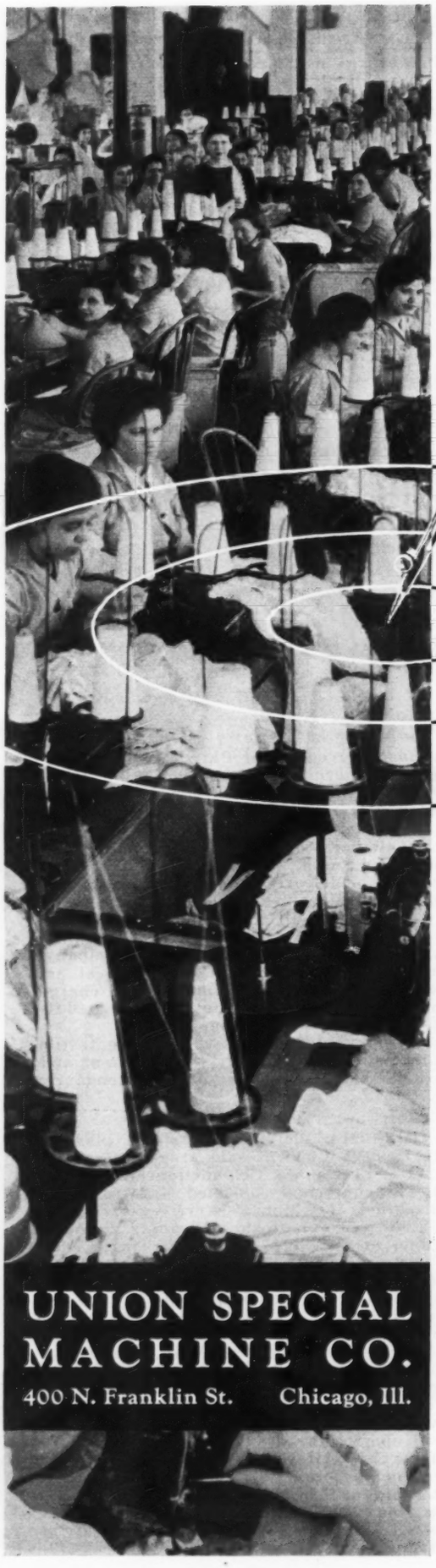
Arthur R. Thompson, Jr., of the Ciba Company, Charlotte, is general chairman of the local arrangements committee. J. C. Killheffer is in charge of entertainment; T. W. Church will handle finances, and F. W. Warrington publicity.

Both active chapter members from the textile schools throughout the country, and alumni and honorary members, will constitute the attendance.

Pottstown Plant Sold at Auction

PHILADELPHIA, PA.—The Pottstown plant of the Ajax Hosiery Co. was sold at public auction by Samuel T. Freeman & Co., auctioneers, on January 30. The equipment consisted of 24 full-fashioned machines of which 18 were leggers and 6 footers, all 45-gauge, high-speed Reading machines equipped to produce lace, mesh and ringless hosiery. The Ajax Hosiery Co. announced at the time that the sale did not mean it was going out of business or that it was going to discontinue the manufacturer of full-fashioned hosiery. The concern continues to manufacture at its other plant, located near Phoenixville, Pa. Most of the equipment and the real estate was purchased by Samuel Burd, formerly of the Burd Buying Syndicate, who is also connected with the Lycoming Hosiery Co., Williamsport, Pa.

He will operate the Ajax machinery under the name of the Stowe Hosiery Mills, which will have 14 leggers and 4 footers. The plant and equipment brought a total of $108,000, full-fashioned machines realizing from $2,850 each to $4,500 each. Paul E. Sutro, of E. Sutro & Son, of York, Pa., bought the remainder of the equipment.



HELPING YOU REACH A *Larger market*

REDUCTION of sewing costs is more than just so many dollars and cents to be credited to the production department—IT'S A SALES TOOL for you to use in your campaigns to build up larger markets! Time after time we have seen users of new high speed Union Special machines do just this. We know they have been successful because they keep coming back for more new machines to help them serve their growing markets. This is why Union Special is continually striving to give you better and faster machines. If you are not thoroughly informed about latest Union Special developments, let us know at once.

UNION SPECIAL MACHINE CO.
400 N. Franklin St. Chicago, Ill.

Loops on Inside Selvage of French Heel—How to Prevent Them

Recently a knitting mill superintendent submitted samples of fabric made on a full-fashioned legger, calling attention to loops formed on the inside selvage of the French heel. He stated that this problem showed up only on the one machine, and had been prevalent ever since the machine was erected. The samples were submitted to three other mill men for comment, and their discussions of the problem are hereto appended:

EDITOR COTTON:

I am writing to discuss the problem of loops inside the selvage of French heel of a full-fashioned stocking, of which you sent samples to me. The samples show an irregular stitch or thread control of splicing yarn on the inside selvage of the French heel, resulting in long loops or distorted stitches. I believe the trouble is due to an improper adjustment of the needle and sinker action. The approach or, we might say, meeting point of sinker and needle is very important in the satisfactory control of these selvage loops. This point, which for want of better description we might call "happy meeting", is well known to any well trained machine adjuster, although easily overlooked through lack of careful check-up. It is thoroughly possible that the trouble can be overcome by a slight variation of needle bar "press" either forward or backward, which will bring about the correct relationship of meeting of sinker and needle and loop control. I would suggest that experiments be carried out in this way on one head of the machine. If these adjustments do not remedy the trouble, then the next move is to check up on the slurcock and catch bar action, particularly the catch bar, to see that the sinker action is harmonizing with the needle action.

There is also some evidence that the trouble may be due to carrier action being slightly out of control, causing the splicing yarn to be thrown over one needle too far at times. However, this trouble usually results in needle breakage, which calls for immediate and careful adjustment. I therefore feel that the trouble can be looked for and remedied by proper adjustment of the needle bar and catch bar action.

The foregoing has been written on the assumption that the entire machine is giving trouble similar to that shown in the sample submitted, and I have commented on that basis. If, however, only a part of the heads are showing the trouble it may be found that proper adjustment of individual heads and individual yarn guides may correct the trouble.

I note that the inquirer, probably for reasons best known to himself, is using rayon high splicing along with the main boot rayon thread. I feel that he would produce more satisfactory knitting and have better loop control if he would use cotton yarn for the high splicing.

CONTRIBUTOR NO. 6419

EDITOR COTTON:

I note that your inquirer is having trouble with loops in the inside of selvages in the splicing on one of his full-fashioned legging machines. There are many things that can be done to overcome this, and it is only by trying out each and every one of these adjustments that he will eventually find what caused the trouble.

First of all, it is necessary to use split dividers for the inside selvage of the splicing as the use of plain dividers will throw loops, especially when making so-called curved heels.

The frictions should be checked to see that they are properly adjusted and are not rebounding. Too loose or too tight a friction will cause this trouble.

A check should be made on the snapper rod adjustment as sometimes the snappers are set too high or too low; also check the snapper cam with a gauge to see if it is properly set. Too much press on the presser cam will also cause loops and a check should be made on the press to see if this machine is pressing too hard.

Sometimes by adjusting the catch bar so that the catch bar is on a little harder will stop making these loops. The selvage bit on the needle bar cam can

WE invite our readers to make use of this department for the discussion of any and all problems arising in connection with the knitting mill from the office to the packing and shipping departments. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. All questions will be answered as promptly as possible. The names and addresses of the contributors must be given, but will be held in confidence and a pen name substituted when printed. All acceptable contributions other than questions will be paid for after publication. The editors do not hold themselves responsible for any statement of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

◆ ◆

Needles are bought not for what they are but for what they do. The only accurate yardstick for measuring value is performance—the quality and quantity of the fabric they produce. That we are America's largest producers of Spring-Beard Needles and that nearly all manufacturers of fine quality silk stockings are standardized on Royersford Needles is a tribute to unfailing results.

The prescription for better knitting

ROYERSFORD NEEDLE WORKS, INC., ROYERSFORD, PENNSYLVANIA

Southern Office: Provident Bldg., Chattanooga, Tenn. • Louis Hirsch Textile Machines, Inc., Special Representatives

ROYERSFORD NEEDLES

also be raised and by doing this, loops in the selvage may be prevented. A thorough check should be made with a gauge on all the cams to make sure that the cams are set right, as sometimes certain cams being set wrong will cause this trouble. In making this check, be sure that the stitch cam, all needle bar, presser and catch bar cams are set according to the gauge as outlined by the manufacturer of the machine.

A check should be made on the rocker cams to see that they are set properly. It may be that filing off the corner of the rocker roller cams, so that the rocker roller will leave the cam with an easier motion, will help overcome the trouble.

It is quite possible that the material that the contributor is using for splicing is too soft and has a tendency to fly easily and therefore I would suggest that he try putting on heavier tension rings on the tension wires. If he is using brass rings, he can use two rings instead of one. Put needle oil on the felt pads in the tension cups, as this will help to keep the material used for splicing firm and usually helps in getting better selvages. It might also be well for the contributor to check the coulier motion and see if the coulier motion is causing the carrier to go across the sinker head with a jerky motion.

He should also see if the slurcocks are worn, as sometimes worn slurcocks cause bad selvages as well as cuts and holes in the fabric.

The play in the sinker heads should be checked as too much play causes the sinkers to fly back during the rocking motion in the splicing. Putting on too much rocker will also cause sinkers to fly back and give bad selvages.

When only one machine in a mill produces bad selvages, it certainly means that at some point on that machine the setting is not proper and therefore the only thing one can do is to check every point that would improve the selvages, and it is a rare case indeed that in making this check one does not find the wrong adjustment at some point, and readjusting this point will usually stop the trouble. A good method in trying to find trouble of this kind is to take a machine that is making good selvages and compare every point with the machine making poor selvages.

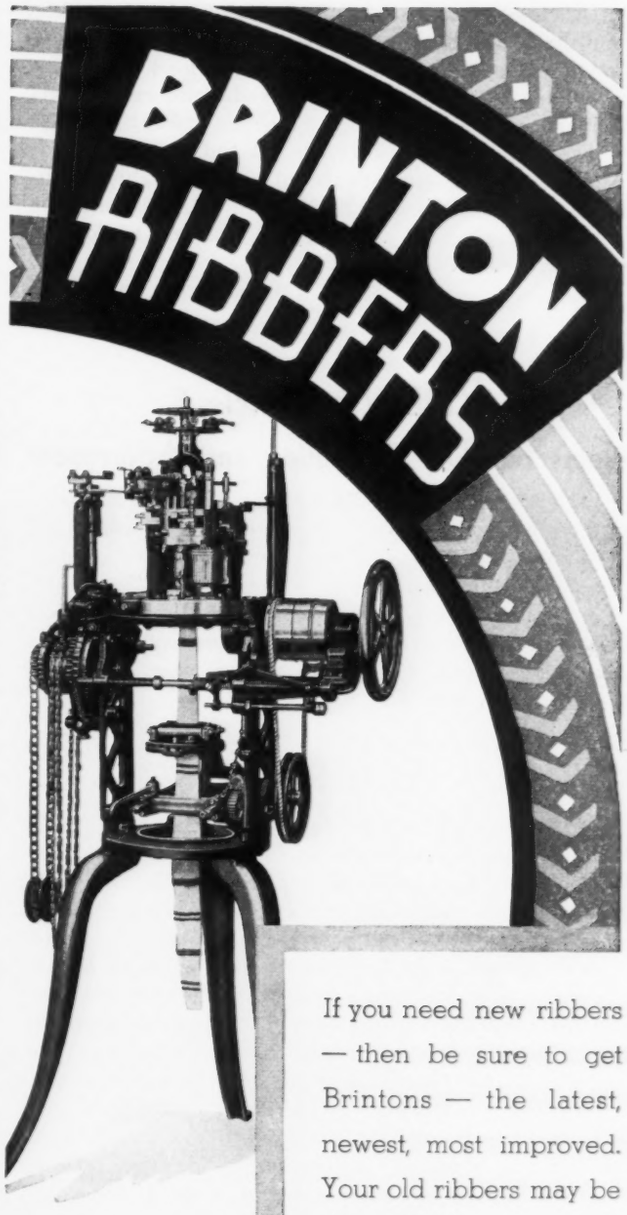
Usually in doing this one will find that at some point there is a difference in the setting of the two machines, and by re-setting the machine that is making poor work so that it is set like the one making good work, the trouble will be over.

C. H. BAXTER

EDITOR COTTON:

I have examined the French heels you submitted showing the irregular inside selvage in the tapered high heel caused by the thread looping over the wrong needle.

There are several contributing causes to a defect of this kind which I might mention. First, carriers bent too low, running too close to sinker head. Second, too much press on the needle. Third, catch bar too far to the front, advancing the sinkers too far. Fourth, wrong adjustment or wrong timing of snappers.



Consider these important Brinton improvements:

RUBBER LAY-IN
PICOT EDGE
4 & 5 COLOR YARN CHANGERS
RACK WELT
MESH DESIGNS

If you need new ribbers — then be sure to get Brintons — the latest, newest, most improved. Your old ribbers may be thoroughly modernized, by adding some of the newest Brinton attachments. Your inquiry will bring full particulars.

3700 KENSINGTON AVE.
PHILADELPHIA, PA.

New York Office:
1270 Broadway

BRINTON
CIRCULAR KNITTING MACHINES

A close examination of the fabric in the ankle, high heel, and heel tab, shows an irregular or unbalanced stitch structure. In one of the heel tabs there is a long loop caused by the needle not casting off properly which indicates the needles are set too high or the knocking-over bits are set too low.

The general appearance of all the fabric indicates that all the stitch forming parts should be thoroughly checked and properly gauged to form a more perfect stitch.

CONTRIBUTOR No. 6423

RIBBERS--Article 5

Notes on Their Operation and Adjustment

(EDITOR'S NOTE—*This is the fifth of a series of articles discussing the operation and adjustment of the parts of rib machines. The first article in the series appeared on page 102 of the November issue, the second article on page 96 of the December issue, the third on page 99 of the January issue, and the fourth on page 155 of the February issue.)*

EDITOR COTTON:

The Bed

Some types of ribbers, due to their manner of construction, are practically immune to worn bed troubles if the small item of correct lubrication is not overlooked. Worn gear rings on the same machines are almost unheard of. On most makes of ribbers, worn gear rings and worn beds go hand-in-hand; as a rule the gear rings show more wear than the beds, the reason for this is of course obvious. Much depends on the bed of a ribber, regardless of make, since it serves as a foundation for the upper half of the machine, and it behooves the rib fixer to keep this foundation—the bed—in first-class condition.

Worn beds can be repaired, provided the mill is equipped with a first-class machine shop; if these facilities are not at hand any attempts at repairing worn beds will turn out to be what we Americans call a flop. Fortunately, worn beds are the exception and not the rule, and in most cases a new gear ring can be fitted into a slightly worn bed without too much trouble. As a rule, new gear rings will be on the large side; no doubt the machine builders make them so intentionally. This makes it possible to cut down a new ring so it will fit perfectly into an old bed provided of course that the bed is true. In the event that the bed is slightly out of round it can be trued up to fit the new gear ring.

From a purely mechanical standpoint, the rib fixer must concentrate on how to prevent beds from becoming worn, rather than trying to find ways and means of repairing them when they get in bad shape.

Now, an experienced rib machine fixer no doubt is willing to agree that correct lubrication will play an important part toward keeping beds in good shape, but, would he be willing to admit that improper adjustment or carelessness on his part can cause a bed to wear out prematurely? Perhaps he is willing to admit that setting the gear ring clamps too tight or allowing the machine to run with the gear ring clamps too loose will affect the life of the bed. We all know from experience what hardened oil and grit in the bed will do and also know what happens when a few broken needle butts or other particles of metal become lodged between the gear ring and bed. And supposing that we set a bob pin too close so that we hear a constant thump, thump at every revolution of the gear ring—will that help the ring and bed?

Before leaving the bed, I shall relate an incident of gear ring and bed abuse caused by improper adjustments. Note the word *improper* and keep it in mind. Our boss didn't use a mild word like that; he was of the old school of "Give 'em hell and make 'em like it".

We had a battery of machines running on two-color striped goods in all-mercerized ingrain and some with resist stripes for dip-dyed numbers. We suddenly had to change about half of our machines to rayon-plaited goods with resist stripes, and of course ran into many minor troubles, such as mis-plaiting, cutting, drop stitches, fuzzy fabric and other troubles which arise in making plaited goods. One of our machines simply would not behave. It was impossible to get the dial set centrally with the cylinder needles. It looked like a case of a bent dial shaft, so we put in a new shaft, but still no results.

It was an old machine and the gear ring had a little play; however, it seemed to be in as good shape as some of our other machines.

We were debating on what to try next when my partner said, "The boss is over yonder; let's call him over here and get some advice from him." Well, he came, listened to what we had to say, and at the same time he was looking at our offending ribber. He immediately let loose with his everlasting questions, and, brother, he could ask 'em and if you couldn't furnish the answers, he could.

The first pop out of the box he asked, "Why are the three springs on this shear rod plunger? I see all your other machines have but one spring."

"Well, the shears on this machine would not close as they should so we added the extra springs sometime ago, and it's working O. K. now".

He then turned the machine until the yarn fingers came in contact with the changer cam and called our attention to the changer cam being set in so deep that it was putting excessive pressure against the finger bracket. He next asked, "How long has this changer cam been on this machine? It looks like a new cam".

"Oh, we put it on several weeks ago. The old cam was worn so bad that it could not be re-faced".

"Do these cams wear out so fast on your other machines?"

"No, sir".

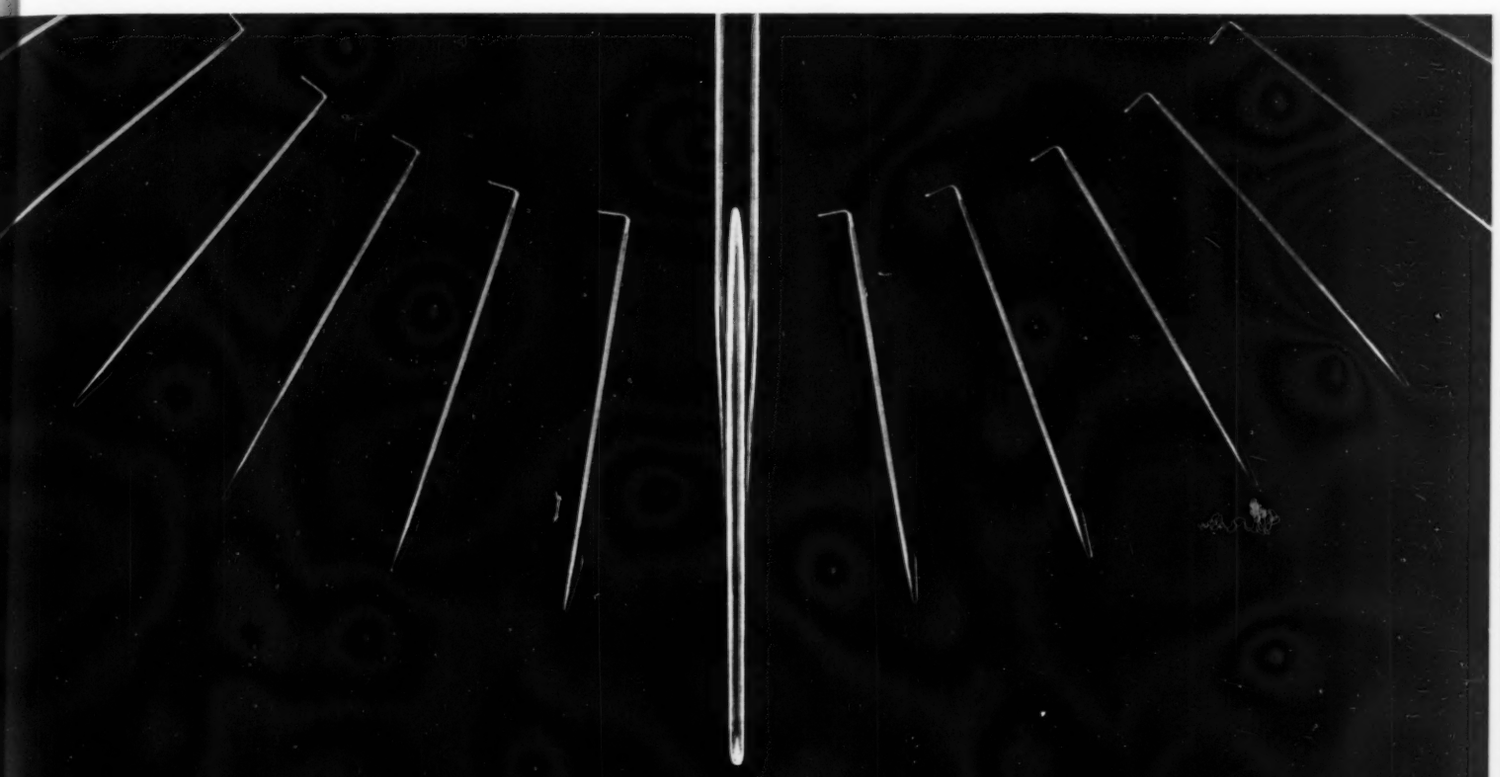
"Well, then, isn't it reasonable to assume that there must be a good reason why this cam is wearing out so fast? Surely this worn cam points to some particular trouble, does it not?"

"Yes, but what we want to know is why this dial is out of center".

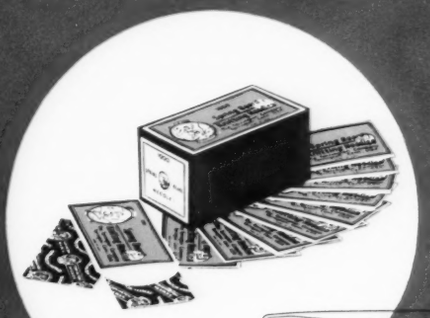
"That's exactly what I'm coming to. I may be

Machine-made means uniform alignment of grooves and beards. The groove of a Torrington Needle is aligned accurately with the beard—a detail that goes a long way toward eliminating dropped stitches, especially in the narrowing process. Machine-made — that's why Torringtons assure smoother performance . . . better knitting.

RENEEDLING at our Philadelphia and Canadian plants is fast, thorough, economical... handled by experts working with special modern equipment. Each job kept intact throughout process. Bars are washed with a special fluid, straightened with a special device and gauged three ways; spaced also by gauge. Slots checked mechanically. Beards raised uniformly—checked by gauge for height and central setting.



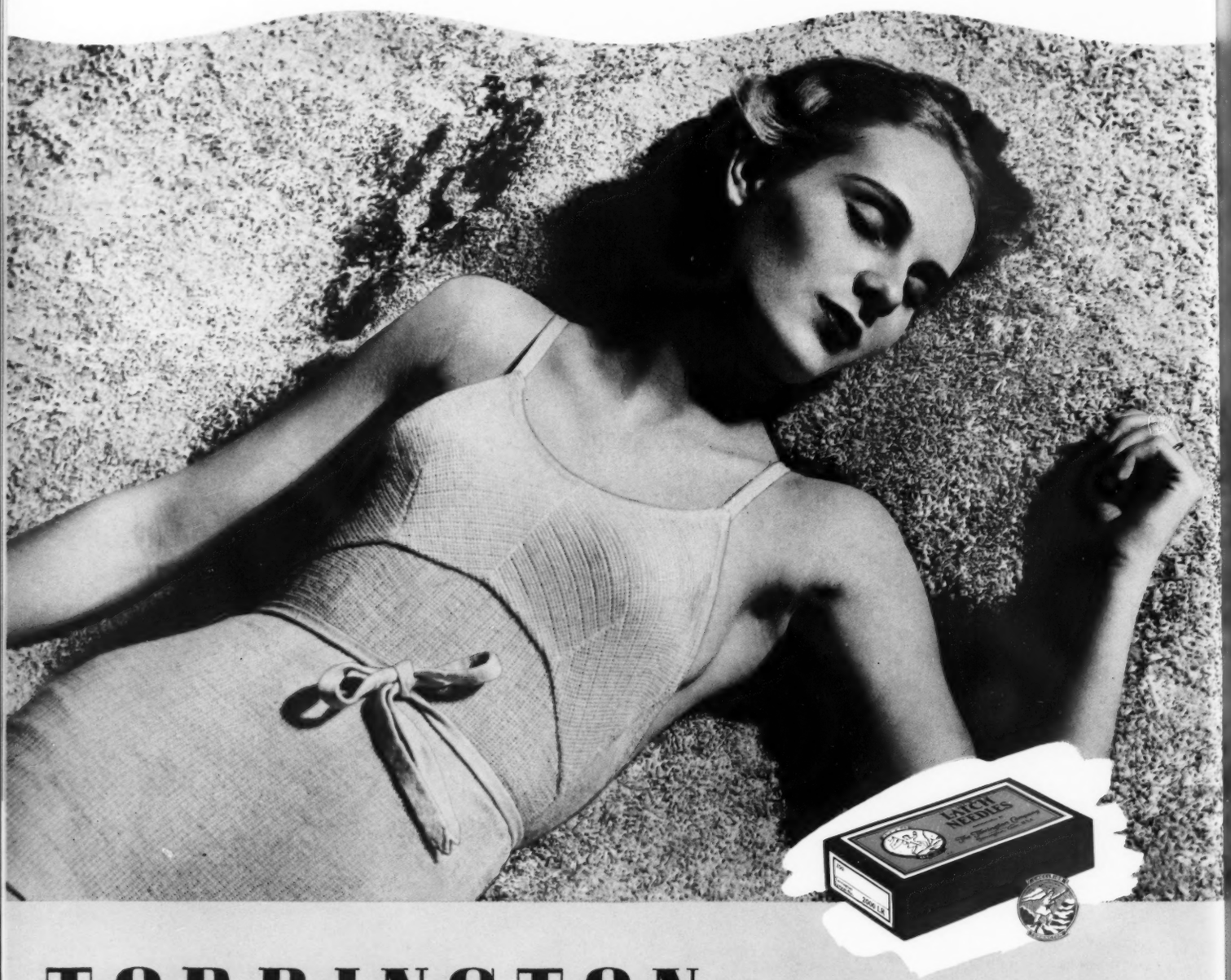
TORRINGTON



SPRING BEARD **NEEDLES**

...and she likes the way it's knitted!

Now, here's a girl who knows good materials... and good knitting. She makes her choice in the matter of fabrics as good knitters the world over make their choice of needles—on *quality*. Time tested. Time proven. Torrington Needles have shown they have the quality that makes for smoother, better knitting. Their fine temper, smooth finish, exceptional strength and consistent uniformity are *machine-made* and can *always* be counted on to produce the kind of results that makes a customer say—"I like the way this fabric's knitted!" There's a type of Torrington Needle for every practical knitting requirement.



TORRINGTON Latch NEEDLES

The Torrington Company
ESTABLISHED 1866
Torrington, Conn., U.S.A.

BRANCHES:

THE TORRINGTON COMPANY,	1640 FAIRMOUNT AVE.,	PHILADELPHIA
THE TORRINGTON CO., INC.,	200 FIFTH AVE.,	NEW YORK, N. Y.
THE TORRINGTON COMPANY,	538 SOUTH WELLS ST.,	CHICAGO, ILLINOIS
THE TORRINGTON COMPANY,	GUILFORD BLDG.,	GREENSBORO, N. C.
THE S. H. SUPPLIES CO.,	210 SOUTH STREET	BOSTON, MASS.
LOS FABRICANTES UNIDOS,	964 CALLE BELGRANO,	BUENOS AIRES

FACTORIES AT:

TORRINGTON, CONN. . UPPER BEDFORD, QUEBEC
COVENTRY, ENGLAND AACHEN, GERMANY

wrong, but I think your trouble is being caused by a worn gear ring and bed. The gear ring was worn some to begin with and your first mistake was in failing to find out *why* you had to use three springs on the shear rod plunger to make the shears close. Three springs put an unnecessary load on the changer cam. Your second mistake was in failing to find out *why* the changer cam had to be set jam-up against the fingers. The changer cam should never be jammed tight against the fingers when they are down; the fingers should have a little play.

"Too many springs on the shear rod plunger and an improper adjustment on the changer cam has forced the gear ring to one side, causing the bed to be worn so that it is no longer perfectly round, which leaves the dial out of center. You boys were on the right track. Take the bed to the machine shop foreman and see that he gets a new gear ring with it. He knows exactly what to do. While you're waiting, go over this yarn changer assembly and fix these shears".

Our bed and gear ring came back from the shop as good as a new unit and we had the old ribber knocking about in no time. We should have known better; we simply failed to get to the bottom of our trouble. Our boss called it d—— carelessness and he was right.

The Driving Mechanism

Perhaps no other unit of a rib machine is neglected quite as much as the driving mechanism. In many mills, regardless of the make of ribbers being used, we will often find idle pulley bearings worn, drive shafts and bearings needing attention and drive shaft pinions running with teeth as sharp as a pocket knife. None of these common ailments can be laid entirely to poor machine construction, however, there are some types of drives that could be improved so they would stand up better. The fact that they do not cause any serious trouble, such as excessive waste or needle breakage, is perhaps one reason why they are left to run until they virtually fall apart. One thing is certain, the rib fixer who permits the driving mechanism on his machines to get in bad shape and does nothing about it until they actually fall apart or until the boss calls his attention to it, will more than likely do the same thing with other parts of his machines. He simply keeps telling himself, "Why should I fool with things that are not giving me trouble?" His eyes see what's wrong, his better judgment tells him something should be done about it, but his laziness, lack of interest, putting off until tomorrow because he's "too busy" today, keep him from doing his duty.

There are a few things that can be done to prevent drives from going to the scrap-heap prematurely. All oil holes should be kept free from lint and old gummy oil. The complete drive should be oiled at least twice each week with a good grade of fairly heavy oil. Oil which is generally used for needles, etc., is entirely too light; it lacks body and will not give a good oil film in a bearing. The person doing the oiling should make sure that it gets into the bearing where it can and will do some good.

Very often we find ribbers standing idle for days at a time, still the idle pulleys run on and on and nobody takes a minute's time to remove a belt and thus save unnecessary wear on pulleys, shaft and belt. Allowing any machine part to wear itself out while the machine is not actually in use is downright extravagance, to say the least. Belts being too tight also cause unnecessary wear on idle pulley and drive shaft bearings. Cleaning belts and applying a good grade of dressing will do less harm than excessive tightening. Ribbers, when in good running order, turn freely; how often we find fixers shortening a belt when a machine suddenly slows down rather than trying to find out why it wouldn't turn freely as it should! When belts are too tight, a slight case of needle breakage or a minor load-up may result in serious damage to the needles, cylinder, dial and other parts.

There are other troubles which show up in connection with drive assemblies, depending on whether the machines have single speed or two-speed drives. Regardless of the type of drives, they need attention constantly and the trouble is they don't get it soon enough.

Drive pinions give a great deal of service with normal usage and attention, but still ribbers are often permitted to run until the teeth on the drive pinions are worn out completely. It is only reasonable to expect that a badly worn pinion will have a detrimental effect on the teeth in the gear ring. Here again it is up to the fixer to prevent rather than to cure.

The Two-Speed Drive

For making plain tubing and some types of ribbed goods, single speed drives are entirely satisfactory. In recent years, however, so many devices and attachments have been added to rib machines which cannot be operated successfully at high speeds. Having a two-speed drive makes it possible to slow the machine down to a moderate speed and thus avoid a great deal of trouble while the different attachments are in operation. When the danger line is passed, the machine can again be speeded up to its normal gait without inviting trouble. The trouble with some rib fixers is that they do not keep the belt shifting mechanism properly adjusted and thereby lessen its value and usefulness. Instead of the belt being fully on the idle pulley when the machine is stopped, it will drag on the low speed pulley and thus not work in harmony with the knock-off or stop motion and brake. Also, when shifting from low to high speed or vice versa, the belt will run half on each pulley, which means that the full effect of speed change is not being utilized and the drive is being subjected to unnecessary abuse.

The Take-up Device

So, brother fixer, be fair to yourself, your machines and your mill. Keep your drives tuned up, remember that the two-speed drive was put on your machines for a definite purpose and if you do not keep it properly tuned up you will not get the full benefit of it. If you have failed to do this part of your job, start now; tomorrow may be too late. *Today* is your opportunity, *tomorrow* a better man may take your place.

All rib machines, regardless of make, are equipped

with a set of take-up rolls, and the manner in which they operate is very much alike, some due to their design giving more trouble than others. There are a number of things about any take-up device requiring a little attention. Much depends on how often the attention is given and how thoroughly it is done. First, we must keep in mind that the take-up device must work in harmony with the stop motion in case of press-offs, failure of the take-up rolls or take-up drive. Very often we find machines which keep on running after they press off until the needles become loaded up enough to cause the knock-off to stop them. Take-up belts being too long or jumping off of the take-up drive wheel bring on other troubles. Correcting all take-up device trouble promptly is but one way to help reduce waste, needle breakage and production losses. Excessive tension on the take-up rolls should be avoided; just enough tension to make the rolls climb and keep them from slipping is all that is necessary. All-rayon and rayon-plaited tops require a little more tension than mercerized or combed tops, yet machines are often changed from one type of goods to another and the roll adjustments are not altered. Changing from heavy to light yarn counts or vice versa calls for readjustment of roll tensions; if something goes wrong, changes are made, if not, why mess with rolls?

All take-up devices are arranged so that additional weight can be added over and above the actual weight of the take-up device. On some goods, additional weight is necessary; on others, it must be reduced. The fixer's job is to know just how much weight he should have for the particular kind of goods he is making. There are no set rules. The necessary information cannot be found in books; it takes horse sense and experience, and both should be well applied. Keeping the tension screws on both sides of the rolls adjusted so the fabric will come through the rolls evenly is important. It requires but a few minutes to check up and fix it, still this simple task is often neglected.

And last, but not least, there is one other item in connection with the take-up device which needs watching—correct lubrication. In most cases, an abundant supply of oil will be found on the take-up rolls—yes, right where we *don't* want it, but there nevertheless. No one puts it there, you say, it drips off of the under side of the bed. Right you are—but the trouble is that no one *wipes it away;* it is left there for the tops to absorb so they can be thrown into waste. Oil-stained tops especially on ingrain numbers are a total loss to the mill. Correct lubrication of the take-up device or the whole machine for that matter will help reduce the amount of oil-stained tops. Remember that correct lubrication includes using the right kind of oil, putting the right amount in the right place and wiping up surplus oil.

The rib fixer usually expects his machine operator to watch for oil-stained tops. The operator is too busy picking up press-offs or looking out of the window watching street cars and busses go by. So, in the end, the little job of reducing oil-stained tops falls on the boss and he seems to have certain days to come around and raise the devil about it.

Some years ago I happened to be within hearing distance while the boss was giving a rib operator down the country for not cleaning his machines thoroughly. The operator was just a kid and took his medicine without a whimper. When the lecture was over, he said to the boss, "If I was you, I'd fire me," and the boss smiled and said "I will—next time".

R. B. ORR

(To be continued)

More about Left-and Right-Twist Silk for Hosiery

EDITOR COTTON:

In reply to the inquiry of "CONTRIBUTOR NO. 6386" with reference to left and right twist silk*, I find left twist to be of some advantage in the delivery from the cone. This is especially true in running high twist silk dry from the cone.

Most cone silk is wound on the 5-turn traverse, that is to say, 2½ revolutions of the cone while the traverse is traveling in one direction and 2½ revolutions while the traverse is traveling in the opposite direction. The silk comes from the cone 2½ times around the cone from top to bottom and 2½ times around the cone from bottom to top.

In the delivery from the cone each circle of the cone adds one turn of twist to left twist and takes away one turn on right twist. This will be about 2½ turns to 27 inches from a full size, 7-ounce cone. As the cone gets smaller there will be 2½ left turns from the delivery of the silk on a shorter section than 27 inches; as the cone gets smaller the extra twist from the delivery increases and causes the tendency to balloon to increase. The ballooning tendency of right twist silk is away from the cone while the ballooning tendency of left twist silk is backward toward the cone.

When the silk is standing idle any movement of left twist silk to kink will throw it toward the cone and the drag against the cone will tend to hold it in position. This tendency will prevent some press-offs due to the silk hanging under the bottom of the cone. There is an advantage in left twist in crowded moistening boxes where two extra cones of silk have to be used for ringless attachments, because the ballooning range is smaller on left twist than on right twist.

An interesting study of this question may be had by wrapping a narrow strip of paper around the finger or a pencil and pulling it off the end in the same manner as silk delivers from the cone. There should not be a noticeable difference in the texture of fabric knit from right and left twist silk when each delivers properly from the cone. Where there is a tendency of the silk to kink or drop from the cone and hang and draw tension lines in the fabric, left twist will help this condition.

Fabric knit from right and left twist silk dyed, will give off a slightly different light reflection when joined together, and should not be mixed.

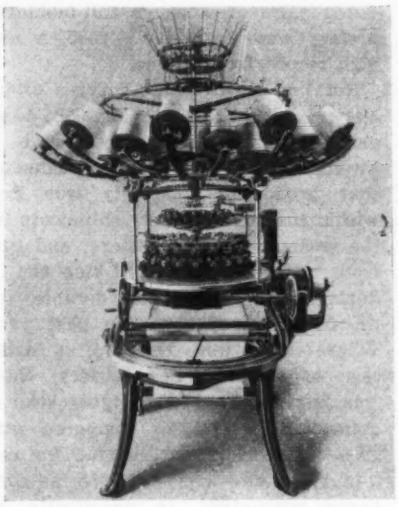
CONTRIBUTOR NO. 6388

(*) The question referred to appeared on page 131 of the May issue of COTTON, and asked also for a discussion of the use of silk thread as a seaming yarn in full-fashioned. A complete answer to both inquiries appeared on page 120 of the June issue; and another on page 97 of the July issue.—THE EDITOR.

Banner Fabric Machine with Fabriscope

Hemphill Company, Pawtucket, R. I., manufacturers of the Banner hosiery machines for 30 years, have announced the Banner fabric machine, a striking feature of which is the number of knitting heads and the ability to select needles in different groups for patterning purposes at each feed. The number of feeds ranges from 17 on the 15-inch machine to 26 on the 23-inch machine.

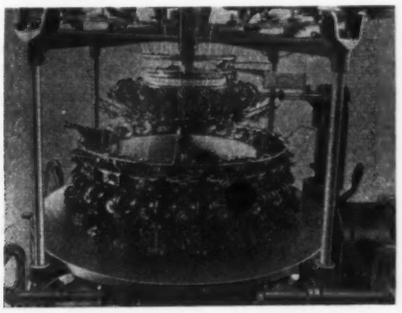
The problem of keeping all knitting heads feeding uniformly has been solved, it is explained by the manufac-



Banner fabric machine with yarns on

turer, through the invention of the Banner Fabriscope, a sensitive high-speed instrument to accurately measure yarns, employing an adaptation of stroboscopic principles.

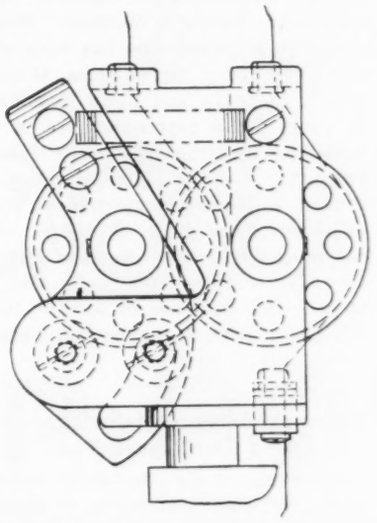
The Fabriscope consists of two wheels having holes punched through at equal distances through which, when the holes are in alignment, light passes. One, the master wheel, revolves in a horizontal plane above the cylinder head and is driven at any de-



Close-up of the knitting parts

sired fixed speed by a positive drive. The holes are punched on the rim of the master wheel at right angles to the plane in which the wheel revolves. The other, the testing wheel, revolves in a vertical plane and is yarn driven. The speed at which the yarn is being fed into the machine is shown at a glance by the relative alignment of holes in the testing and master wheels of the Fabriscope. The testing wheel is moved from feed to feed and is said to reflect the slightest variations in the speed at which the yarns are fed into the various knitting heads. The company states that the Fabriscope shows changes in the rate of feed before these appear as flaws in the fabric so it is possible to get a consistently perfect score on first quality cloth.

At each knitting head micromatic adjustment is provided through an eccentric control which raises or lowers the stitch cams to secure even feeding where the Fabriscope has shown that

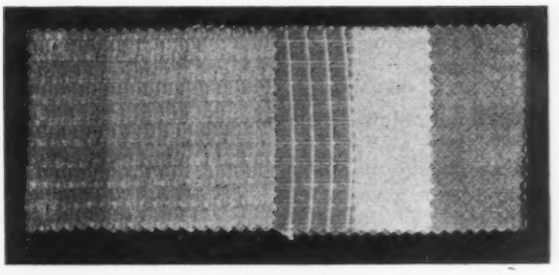


Illustrating principle of Fabriscope

an adjustment is needed. The adjustment is made with the Fabriscope in place at the knitting head and the Fabriscope indicates to the operator the exact moment at which the proper adjustment has been effected.

The Banner fabric machine is equipped with latch needles, but the finished fabric upon examination, it is pointed out, does not show a typical latch needle stitch. A new method of stitch measuring is used, employing both the needles and the sinkers, so that the needles, by making a relatively short move in the cylinder slots, are able to form a symmetrical stitch. The machine builders state that the use of latch needles makes possible the large number of knitting heads because of simple controlling mechanism and further enables them to apply many of the engineering principles developed for Banner hosiery machines to the new Banner fabric machine.

Right, illustrations of some of the fabrics produced on the Banner fabric machine . .



A compensator is provided at each knitting head which pulls the yarn off the cones and delivers it at the knitting point in the quantities desired. This compensator is claimed to eliminate uneven tensions from the cones and yarn guides and to lessen strain on the needles. It is self-adjusting so that it delivers only the desired quantities of yarn regardless of whether the machine is running with floats, tucks or plain fabric. Partly as a result of the uniform control of yarn tension at each knitting point, these machines are knitting yarns as fine as 50 denier with the aid of the yarn compensating device.

As pattern changes are effected without changing jacks or adding wheels or other parts, it is said that a competent mechanic can stop the machine, change both pattern and weight of fabric and resume knitting in 15 minutes. Two of these machines will be in operation at the Knitting Arts Exhibition, in addition to the company's hosiery machines.

Spring Hosiery Card

The regular edition of the 1936 Spring Hosiery Card has been released to members of the Textile Color Card Association. Co-ordination notes are printed below each color explaining the correct relation of each hosiery tone to the dominant color tendencies in costumes, shoes and other accessories.

New Bulletin

Lukens Steel Company, Coatesville, Pa., have put out a new bulletin, T-4, on the methods for the fabrication of Lukens nickel-clad steel. It contains 12 pages and is illustrated.

Republic Rubber Names Smith

G. L. Smith was recently appointed assistant sales manager of The Republic Rubber Company, Youngstown, Ohio. Mr. Smith, who has been with the company thirteen years, has made an enviable record as salesman.

70th Birthday Anniversaries for Ferdinand Thun and Henry Janssen

The 70th birthday anniversaries of Ferdinand Thun and Henry Janssen, co-founders of the Wyomissing Industries, Reading, Pa., constituted the occasion of a huge birthday celebration attended by 8,000 employees on Wednesday, February 12. The Wyomissing Industries embrace the Textile Machine Works, the Narrow Fabrics Company, and the Berkshire Knitting

Mr. Thun

Mr. Janssen

Mills, a tremendous development springing from the small machine shop opened by these men in Reading in 1892.

By a quirk of fate, Mr. Janssen and Mr. Thun, born in Barmen, Germany, within eight days of each other in 1866, were not acquainted in the old country. Mr. Janssen came to America in 1888 and Mr. Thun in 1886. They met accidentally in New York City and formed a partnership for the manufacture of braiding machines, then made only in Germany, opening a small shop in Reading. In 1896, the partners decided to build a new shop, and chose for its location the present site of the Wyomissing Industries. During the years 1896 to 1900, the business increased consistently. A special machine for a new brush braid was so well thought of by Harry Feder, of New York City, that he encouraged Mr. Thun and Mr. Janssen to manufacture the article, and accordingly, they set up a battery of braiders for the purpose.

This led to the formation of the Narrow Fabrics Company, incorporated on January 2, 1900, the management of which was later taken over by H. M. Fry and the late Max Mittendorf, and indirectly to the incorporation of the Textile Machine Works, August 14, 1900. In 1900, Mr. Thun and Mr. Janssen built the first "Reading" full-fashioned knitting machine. The Textile Machine Works and the Narrow Fabrics Company are now headed by Mr. Janssen.

An experimental knitting department of the Textile Machine Works led to the establishment of the Berkshire Knitting Mills on July 12, 1906. Mr. Thun now heads this company, which is the world's largest manufacturer of full-fashioned hosiery.

Six years ago, Mr. Janssen and Mr. Thun founded the Wyomissing Polytechnic Institute, for training technical men, who work half time in their shops and spend alternating periods in class rooms. The two men and an associate, Gustav Oberlaender, now retired, founded the new Reading Hospital. They gave land, $100,000 cash and art objects for Reading's new Public Art Gallery and Museum, built a $450,000 bridge over the Schuylkill River, and have been active in many other philanthropies. Their benefactions have exceeded $5,000,000.

At the joint birthday celebration, deluxe editions of a 180-page volume, "Partners", a pictorial history of their 44-year partnership, were presented to Messrs. Thun and Janssen. The book, in photographs, sketches and text, records step by step the development and progress of the Wyomissing Industries from 1892 to the present. There are more than 350 photographs.

At the celebration, a group of employees longest in the service of the Wyomissing plants escorted Mr. Thun and Mr. Janssen to the platform. Representing Textile Machine Works were: Peter Moos, who has been with the organization for 40 years, William Moyer, 38 years, and Alvin Brumbach. 38 years. The representatives of the Berkshire Knitting Mills were Herbert Potteiger and William Hinnershitz, both of whom are completing 31 years of service, and I. B. Whitman, with one year less. The Narrow Fabrics Company was represented by Carl F. Meyer, with 40 years of service, Howard Klein, with 31 years, and Francis Taubitz, with 30 years.

December Hosiery Statistics Round Out Record Year

According to the statistical bulletin of the National Association of Hosiery Manufacturers, recently released, total shipments of all types of hosiery in December, 1935, at 8,648,372 dozen pairs were approximately 427,000 dozen pairs, or 5%, more than total shipments in December of 1934. As was to be expected, however, there was the usual seasonal decrease of approximately 15 per cent in December shipments as compared with the preceding month. This seasonal slackening in demand was felt in every type of hosiery except boys' socks, infants' socks, and anklets.

Total production of all types of hosiery in December, 1935, was 8,917,906 dozen pairs. Production generally was well gauged with respect to shipments. A gain of some 300,000 dozen pairs in stocks of anklets in December is a condition which usually occurs during the winter months when manufacturers of anklets prepare to meet the heavy Spring demand and commitments.

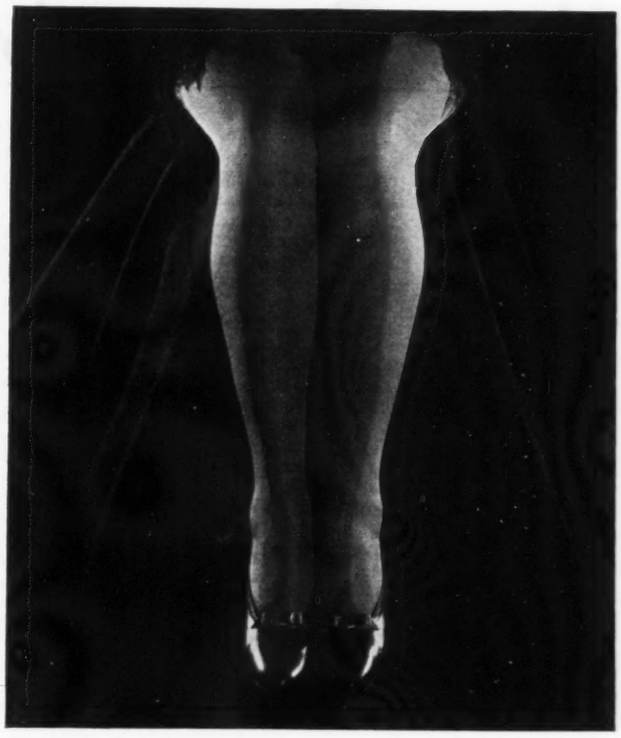
For the entire year 1935, total shipments of all types of hosiery were 111,268,099 dozen pairs, a gain of 7,835,051 dozen pairs, or 7.5 per cent, over the 103,433,048 dozen pairs shipped in 1934. Total shipments in 1935 represented a new high point since 1929. Shipments increased in 1935, as compared with 1934, for all types except women's seamless cotton and rayon, boys' socks, misses' ribbed goods, and cotton bundle goods. Over 34,000,000 dozen pairs of women's full-fashioned hosiery were shipped in 1935, a new high record for all time.

Total production of all types of hosiery in 1935, at 111,522,434 dozen pairs, was approximately equal to shipments. The Bulletin comments that production generally was kept within the bounds set by shipments for the various types of hosiery, and that from a statistical point of view the industry has shown considerable improvement throughout the past year. Where stocks were built up, as in the case of full-fashioned hosiery, there was justification in the higher level of shipments in 1935, as compared with 1934. The decreased demand for certain types of hosiery in 1935, as compared with 1934, in practically all cases was accompanied by a reduction in stocks.

Barratt and Hayes Acquire Charles Cooper Company

The entire preferred and common stock of the Charles Cooper Co., Inc., Bennington, Vt., has been acquired by William T. Barratt and John J. Hayes, of Bennington, by bequest and purchase from the executors of the estate of Elizabeth Cooper Kelley, as of January 27, 1936. Mrs. Kelley, who died April 7, 1935, was the daughter of Charles Cooper, and at the time of her death was owner, president and treasurer of the company established by him. Each of the new owners has been with the company for over 40 years; they will continue under the same business name, the same factory and equipment, and will continue to carry out the same policies and practices this company has enforced since its formation in 1842 by Mr. Cooper. The company manufactures spring beard and latch knitting needles, and the Cooper spring needle circular rio knitting machine. New officers are: William T. Barratt, president; John J. Hayes, vice-president and treasurer; Harry S. Phillips, assistant treasurer; and Clarence Bird, Jr., clerk.

An essential for Good Hosiery



Houghton's

SCOUROL

W. P. POWDER

MEETS ALL REQUIREMENTS FOR AN EFFECTIVE BOIL-OFF AGENT

1. **Low in moisture content.**
2. **Practically constant pH value.**
3. **Will not react with lime or iron salts in the water.**
4. **Will not interfere with any subsequent finishes.**
5. **Rapid in wetting out and penetration.**
6. **Highly concentrated — shipped in light, inexpensive containers.**
7. **May be used for 1-bath, 2-bath or split-bath methods.**

A buff-colored granular substance, readily soluble in hot or boiling water, and used alone or with other materials to boil off hosiery, either in the dye bath or preparatory to dyeing.

Note the advantages listed at the left, and use the handy coupon below for full data.

E. F. HOUGHTON & CO.
240 W. Somerset St., Philadelphia, Pa.

----Please send the Scourol Folder.
----Have the Houghton Man Call.

Name ----------

Company ----------

Street ----------

City ----------

THE KNIT GOODS MARKETS . .

Philadelphia, Pa., February 17, 1936.

PERSISTENT weakness in the raw silk market, uncertainties in connection with processing tax refunds, the possible imposition of new and retroactive excise taxes and extremely cold temperatures in most sections of the country have combined to give the knit goods markets a quiet tone during the last month, with prices in most instances trending in the buyers' favor. New business has been small and specifications against old orders have been postponed in many divisions of the market.

Raw silk has declined more than 10 cents during the last month, some of the future months being quoted at $1.79 compared with $1.90 last month. The raw material market is about 40 cents a pound higher than a year ago but 60 cents a pound off from the peak touched last October. This easiness in silk has caused buyers of hosiery to operate cautiously because of their fear that a continuation would bring about lower prices for all hosiery made from silk.

Questions in regard to the making of refunds on cotton yarn and cotton goods contracts have been another important factor in slowing down trading in knit goods. Although clauses have been added to contracts, endeavoring to cover this contingency, the machinery has not functioned as promptly in practice as was expected. There are many ramifications of the refund question which are being brought up that sellers, whether of yarns or goods, had no conception of before the Supreme Court decision. For example, some manufacturers and some of their customers have stated that they intend to seek recovery of processing tax payments on their merchandise back until 1933, when the AAA was started.

The prolonged cold weather during the last month has been another, although less important factor in the primary knit goods market. It has had the effect of retarding retail sales in many sections, although recent reports indicate that these have held up well in view of the exceptional conditions confronting them. In view of this, manufacturers say that new business has been coming to them at a less active rate than it would have under more normal winter conditions.

Anklet Business Good

One notable exception to this general dullness exists in the case of anklets, women's and infants', on which duplicate orders in fair to good volume have been received and business described as generally satisfactory. The largest anklet business done in this country to date is indicated for the spring season. The bulk of these products will be made of combed and mercerized yarns, although a fair demand for rayon for this use has been reported. Knitters say in this connection that the bulk of their line will be of mercerized.

Full-Fashioned Sales And Prices Weak

Prices on volume numbers of women's full-fashioned stockings have been weak and sales disappointing. Prices quoted on some unbranded full-fashioned 42-gauge ringless have been down to $5.25 and single-carrier at $4.75 or 50 to 75 cents under the list quoted a month ago. Such prices have caused some of the larger organizations to go over their costs on present raw silk quotations to see if business at the lower level could be done at a profit and the report was unanimous that this could not be done.

In this connection a chain buyer has been in the market offering to place 50,000 dozen pairs of ringless goods to both southern and Pennsylvania mills at $5.25 but to date has been unable to find manufacturers to take business at this price. Goods of this variety cost the average mill from $5.25 to $5.40 exclusive of selling expenses, taxes and depreciations. This would mean an average loss on the order in question of from 15 to 30 cents a dozen.

Hosiery sellers see indications of an improvement in demand in the near future. They point out that production was curtailed substantially through January, especially in the full-fashioned division and there are plenty of examples of the need for merchandise by both retailers and wholesalers. At the same time, manufacturers report that the uncertainties created by the elimination of the cotton processing tax are being cleared away gradually. It is predicted in some quarters that a rush for merchandise will develop in March but buyers have not been disturbed by such predictions as yet.

New prices quoted on cotton and part-cotton hosiery, reflecting the elimination of the cotton processing tax, show average reductions of approximately 2½ cents a dozen on anklets and 5 cents on low-end all-cotton half hose. Some mills are quoting reductions of 2 to 2½ cents on low-end fancy half-hose.

Spun Rayon Increasing In Half-Hose

Reports from various sections of the market indicate that half-hose manufacturers will use larger quantities of spun rayon yarns. Experiments made thus far with spun rayon hose have been generally satisfactory, some of these having cotton toes and heels with ribbed tops with the balance spun rayon. They have a comfortable feel and do not have the excessive heat retaining qualities of wool, although the spun rayon gives an appearance very similar to a wool mixture. It is felt there are good opportunities in the half-hose field for mixtures of staple fiber with other fibers because of the good demand for novelty effects in such hosiery. Manufacturers who have considered this type half-hose say that it is desirable to continue to use cotton toes, heels and ribbed tops because cotton is stronger when moist or wet and also because cotton yarn is cheaper.

Full-fashioned hosiery manufacturers report that interest in crepe and crepe effect stockings is increasing substantially. In general, crepe stockings are those made from high-twist silk yarn, giving the fabric a dull or creepy appearance. The chief advantages claimed for them are snag resistance which would mean longer wear and the fact that on the leg they appear sheerer than they really are. Knitters say that a larger percentage of their spring orders to date have been for this type merchandise than in any previous season. It is expected to prove a welcome detour for many manufacturers from the no-profit and highly competitive low-end full-fashioned hosiery.

Up-state manufacturers of men's fancies report considerable interest on the part of large chain buyers for rayon and silk mixtures in new patterns priced at $1.55 a dozen. Some of these mills have booked a large volume from the chains. More of them are showing men's fancy anklets at the $1.50 price and report a growing interest in different parts of the country for this style. The east still hangs back for the most part, although interest from this district is larger than it was.

"Fashioned" Plants Follow Seamless Southward?

In recent years all of the seamless hosiery plants in this city have been forced to move to other sections, most going to the south because of the more favorable operating conditions there. In view of the announcements of several full-fashioned hosiery concerns here during the last month that they were planning to move to the south, there is considerable discussion whether this city is about to lose its full-fashioned mills as it already has its seamless establishments.

Manufacturers taking this step have said that the impelling reason was that it was possible to manufacture full-fashioned hosiery more cheaply there than here. Although admitting the truth of this allegation a number of manufacturers say they are not yet ready to leave this section because they feel that if a large enough number of manufacturers were to do so, some of this competitive advantage would be lost and an executive of one of the full-fashioned hosiery associations said that a canvass of its membership led to the conclusion that while possibly six or eight local mills would move, the others have no immediate intentions of doing so.

Shipments of all types of hosiery during 1935 were the largest of any year since 1929. Shipments last year totalled 111,268,099 dozens, which was a gain over 1934 of 7,835,051 dozens according to the National Association of Hosiery Manufacturers. Aside from the peak production reached last year, an outstanding development in that period was

the demonstration that hosiery manufacturers are determined to retain the desirable features of the NRA, particularly in connection with their relations with employees and consumers. The industry has also made considerable advances in the field of style during this period. In 1934 there was only one manufacturer making knee-length stockings, which are expected to be in larger demand this year, while in 1935 there were ninety-six. The production of hosiery and half-hose for men and women with elastic self-gartered tops was given considerable impetus during the year.

Shipments in 1935 increased for all types of hosiery compared with 1934 except women's seamless cotton and rayon, boys' socks, misses' ribbed goods and cotton bundle goods. Over 34,000,000 dozen pairs of women's full-fashioned hosiery were shipped in 1935, which is a new high record for the industry. Total shipments of all types of hosiery in December were 5 per cent larger than the total shipments in the same month a year previous. As was to be expected, there was the usual decrease of approximately 15 per cent in December shipments as compared with the preceding month. This seasonal slackening in demand was felt in every type of hosiery except boys' socks, infants' socks and anklets. Production during the month was well gauged with respect to shipments. A gain of some 300,000 dozen pairs in stocks of anklets during the last month of the year was a condition which usually occurs when manufacturers prepare to meet the heavy spring demand for this type merchandise.

In general, hosiery production of all types during the last year was kept within the bounds set by shipments and in fact from a statistical point of view, the industry has shown considerable improvement over the last year in this respect. Where stocks were built up as in the case of full-fashioned hosiery, there was a justification for this increase in the higher level of shipments in 1935 as compared with 1934. The decreased demand for certain types of hosiery last year in practically all cases was accompanied by a reduction in stock.

The number of employees in the industry reached a peak of 149,326 in October 1935 and notwithstanding the seasonal decline in mill operations during November and December there were still 147,053 on the industry's pay roll at the end of the year. These figures represent an increase of about 15,000 over the number of employees in the hosiery industry in 1933.

Full-Fashioned Standards

A final draft proposed standards of construction for women's full-fashioned stockings has been submitted to the industry by the National Association of Hosiery Manufacturers. They provide for three classifications of stockings, A, B, and Sub-standard, setting up minimum standards of construction for the leg, such as width of the needle bar, total length and number of courses from picot to heel loose course. The proposed standards are being distributed in the industry and among trade buyers, women's clubs and others. The committee which drew up the standards recommended that Standard A merchandise shall not be stamped but that the stamping of all other standards and classifications be made mandatory, recommending specific stamping for all stockings not of this grade.

Hosiery Import Figures

Cotton hosiery imports last year were 745,670 dozen, a larger figure than for several years and of this total, Japan supplied 644,641 dozen. These import figures were compiled by the National Association of Hosiery Manufacturers which reports that the total value of such imports was $485,353. The 1935 imports of cotton hosiery were lower in value than either of the two previous years, while being higher in the number of dozens, which was due to the low-unit value of our imports from Japan, which now are our leading import items. Our 1935 imports from that country alone were in excess of our total imports of cotton hosiery from all sources during either of the two earlier years under consideration.

Having a low unit value of approximately 35 cents a dozen, this extraordinary volume lowered the gross value of all imports accordingly, or looking at it from another angle, our 1935 imports from Japan were greater than combined imports from that source during both of the years immediately preceding. Japan's gain in our market, according to the National Association of Hosiery Manufacturers, has only been partially at the expense of our domestic trade. The statistics indicate that our imports of cotton hosiery from all sources other than Japan have been progressively lower each year since Japan began encroaching on our market.

Wool hosiery imports during 1935 amounted to 183,630 dozen, with a value of $485,669 compared with 128,844 dozens in 1934 valued at $410,959. The United Kingdom was the principal source of such imports, Germany having practically dropped out of the picture, but Japan has just begun to enter this field of wool goods.

A committee was appointed by the National Association of Hosiery Manufacturers to appear before the House Labor Committee in Washington February 4 to present arguments and statistics in protest against the Ellenbogen bill (The National Textile Act) denying that conditions within the industry warranted the setting up of a "little NRA for the textile industry".

It was argued by the committee that recent and prevailing conditions in the hosiery industry disputed the premise upon which this bill was urged and the committee asked that this industry should be removed from the jurisdiction of the bill. Earl Constantine, managing director of the association, presented a brief in which it was asserted that the severe price instability mentioned in the Ellenbogen bill was largely due to fluctuations in the costs of raw material. Along with most other products, the price of hosiery has declined during the past six years, the trend in full-fashioned hosiery prices since 1929 being from $9.31 per dozen pairs in that year down to $5.24 as an average wholesale price in 1935.

Answering the charge that the total amount of goods had declined, the hosiery brief pointed out that the flow of hosiery in commerce in recent years had increased substantially and cited the volume of hosiery shipped in the seven years covered by this period. It was shown that whereas 29,980,000 dozen pairs of women's full-fashioned hosiery were shipped in 1929, 34,260,000 dozen pairs have been shipped in 1935 and that while the shipments of men's seamless goods in 1935 were lower than the shipments in 1929, the figure was higher than any since that time. This was also true of the total volume of hosiery shipments, which were smaller in 1935 than they have been in 1929.

From March 1, 1929, to July 15, 1933, Pennsylvania, the district with the largest number of full-fashioned machines, it was stated, lost only 3 per cent of its machinery. The South, during this time gained 9.4 per cent, the increase being from 7 per cent to 16.4 per cent. The brief added that the census of full-fashioned knitting machines in place, as of April, 1935, showed 21.5 per cent located in the South.

The Underwear Situation

Although underwear manufacturers are busy on spring merchandise, this market has been affected unfavorably by the uncertainties which have followed the upsetting of the AAA with its processing taxes. This has not only retarded purchases of cotton yarns by underwear manufacturers but the question of refunds has been causing considerable trouble between manufacturers and their customers.

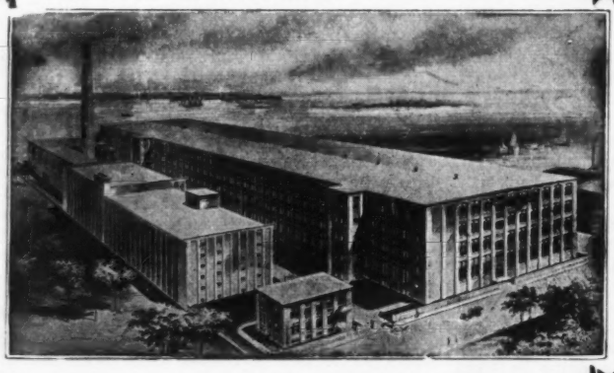
New prices are being announced by the mills for fall underwear. These make allowance for the end of the processing tax and take into account also a reasonable allowance for profit to the manufacturer. Costs this year are also being increased by the new pay roll tax under the Social Security Act. Prices named by a number of representative mills on men's cotton ribbed goods for next fall start at $6.12 a dozen for the 12-pound union suit. On the same basis the 14-pound suit is $6.75 and the 16-pound suit $7.37½ a dozen. The men's 10-pound shirt and drawer is $4.25 with the 8-pound garment $3.75. The part-wool numbers, which have been of growing importance are priced on the basis of $1.50 a dozen higher for the 10 per cent construction over the same weights in all cotton numbers.

In the boys' numbers the 10-pound cotton ribbed suit is priced at $4.62½ per dozen with the 8-pound suit at $4.25. It is recalled that a year ago when prices were made for the fall of 1935 that the market opened at $6.75 a dozen for the men's ribbed suits weighing 12 pounds. This price was 12½ cents lower than manufacturers had been figuring on as representative of cost at the time. With the slow buying early last year, resulting from the heavy carryover by jobbers from 1934, a bad competitive situation developed, resulting in weakening prices and the bringing out of sub-standard numbers. The market then settled down to a nominal basis of $6.50 a dozen for the regular 12-pound suit with some mills even selling below that figure. This market condition was graphically reflected in the reports on earnings for such mills during that period.

One manufacturer opened underwear lines for the next

Quissett Mill

New Bedford, Mass.



Spinning Quality Into Yarns

Quissett's modern and efficient mechanical facilities for spinning yarns are necessities.

Of much more importance to the textile man, however, is the interest and utmost care exercised by Quissett workers throughout every process.

It is this human control that maintains the uniform high standard of Quissett Yarns . . . the element that adds confidence . . . the assurance of satisfaction . . . as an inherent tangible value.

Carded and Combed Cotton Yarns in all numbers and Descriptions.

Ply Yarns our Specialty.

Egyptians, Sea Island, Peelers, Sakelarides, Pimas and Peruvians.

1910 QUISSETT MEANS QUALITY 1936

Wm. M. Butler, Pres.
Edward H. Cook, Treas. Thomas F. Glennon, Agent

★

for
Low Lustre
Finer Texture
Spot Proofing
Run Resistance
Longer Life

"BROSCO" SILK FINISHES

In fact, "Brosco" Silk Finishes meet *every* demand of the modern market . . . for they give hosiery a finer appearance *plus* longer life.

"Brosco" Finished Hosiery *keeps the customer sold,* too . . . because these finishes fix themselves so firmly in the fibre that they will withstand innumerable washings.

Write for full details . . . or have one of our hosiery experts call. There is no obligation, whatsoever.

SCHOLLER BROS. INC.
Mfgrs. of TEXTILE SOAPS, SOFTENERS, OILS and FINISHES
Amber and Westmoreland Sts., Philadelphia, Pa.
and in St. Catharines, Ontario, Canada.

AVONDALE MILLS

Sycamore, Ala. — Sylacauga, Ala.

OFFER THE ADVANTAGES OF LARGE FACILITIES — QUICK SERVICE

THEY CAN READILY SUPPLY ANY TWIST, PLY, OR PUT-UP IN CARDED OR DOUBLE CARDED YARNS FOR KNITTING, WEAVING OR INSULATING IN ALL NUMBERS FROM 3's TO 40's.

Selling Agents:

WATERMAN, CURRIER & CO.
INCORPORATED

BOSTON CHARLOTTE NEW YORK
PHILADELPHIA CHATTANOOGA

fall season at prices that will permit its 12-pound men's ribbed cotton suit in the best quality to be jobbed in case lots at $7.87 a dozen. This reduced price will allow the retailer over the counter to the consumer at a $1.00 a garment, a price not possible for several seasons. A year ago this company priced its 12-pound suit at a figure that did not permit it being jobbed in case lots at less than $8.87½ a dozen. This spring line was enlarged in polo shirts by the addition of four or five numbers in fancy stitches such as pineapple, diamond pattern and an attractive diagonal pattern, which will retail from 39 cents to $1.00.

Larger Volume in Polo Shirts Expected

It is expected that knitters will do a larger volume of business in polo shirts this year than last. These items took up a good proportion of knitting machinery in underwear mills during last year. Not only the flat knitting machines but various kinds of ribbed machine, such as those on the tuck-stitch order will likewise be called on to meet the large demand for these popular sport shirts in 1936.

Last year's volume in polos ran into large volume for those mills that were prepared for the demand that developed last summer. This year it is likely their volume in these lines may be easily doubled or tripled. The original orders already booked are ordinarily but the beginning of this kind of business, for most buyers are inclined to go slowly in their first purchases. This year, however, many buyers have expanded their original purchases beyond anything they ever placed before. Should the reorder demand come up to expectations, mills will be running far into the summer months to meet this demand.

The style element is playing a large part in the new polo shirt business. Many variations from the original mesh knit shirt having been put forward to attract new attention and lift numbers out of the competition in the cheap, low-end merchandise. Not only have polos been put out for men and boys as previously, but some samples have been shown for women's wear and these have taken hold in certain parts of the retail trade. The women's blouse houses of the chain order have seen an opportunity to put the polo shirt forward for new business.

There have been polo shirts priced as low as $2.25 a dozen for men's sizes with the boys' numbers in proportion. A very large volume of business has also been developed in higher priced numbers up to $5 00 and above per dozen. Heavier weight, superior knitting and style touches of a new kind have fully justified the prices asked by manufacturers. Large shirt manufacturers have supplied a good part of the current season's business in polos, as these makers of staple men's and boys' woven shirts have found their regular business injured and have been compelled to take up the knit shirt.

Underwear Statistics

Stocks of underwear were considerably smaller at the end of 1935 than a year previous. The figure at the end of last December was 2,272,032 dozens of all kinds of wool, cotton or mixed underwear compared with 2,592,387 dozens at the end of 1934. In the production figures, the largest single item was men's and boys' athletic shirts, the December output last year being 465,000 dozens compared with 293,000 for the same month in 1934. In the rayon end of the industry production this December amounted to 328,765 dozens from purchased fabric against approximately 350,000 in December 1934.

The underwear industry closed last year with a small gain in production over the preceding year, approximately 2 per cent, which increase was in the last half of the year. It is estimated that production in 1935 was approximately 38,000,000 dozen. In the six months following the overthrow of NRA, underwear production recorded a 7.6 gain over that for the similar period of the preceding year. Stocks of all types of underwear at the end of the year were approximately 15 per cent less than a year ago, with individual decreases as follows: Knit cotton wool, 17 per cent, knit silk rayon, 6 per cent and woven cotton, 18 per cent. Unfilled orders on hand at the end of the year were considerably larger than a year previous, it being estimated that they were about 29 per cent larger. The bulk of this upturn occurred in the knit, cotton and wool underwear branch of the industry. Important gains of 20 and 49 per cent were also recorded by the circular, knit, silk and rayon and the woven athletic underwear branches respectively.

According to figures of the Underwear Institute, 1935 employment in this industry amounted to as much as 93 per cent of that in 1929, the peak year; an actual gain of 2 per cent in employment last year and 6 per cent in pay rolls took place compared with 1934. The same source reports that the underwear industry includes some 600 mills employing approximately 65,000 workers at an annual pay roll of more than $41,000,000. Approximately 85 per cent of the annual mill sales volume, about $165,000,000 at present levels proceeds from the knitting of underwear fabrics and the cutting and sewing of such fabrics in the making of underwear.

As did the hosiery industry through its association, the Underwear Institute on behalf of this trade filed a strong brief against the Ellenbogen and cited ten reasons why this industry would be unable to operate under such provisions, the most important being that labor costs in underwear manufacture have always been higher in relation to the value of products than in most other industries so that any increase in labor costs is particularly burdensome. It was also pointed out increased labor costs would accelerate the displacement of men by machinery.

Although the executive committee of the Underwear Institute decided not to determine upon any policy to be followed by the industry as a whole in the processing tax matters, a number of mills selling to the wholesale trade decided they should ship unfilled orders minus the processing tax and recommended the use of a clause which stated that the invoice has been adjusted in accordance with the discontinuance of the processing taxes. In the event that it did not release sellers of obligations in this connection rights in the matter would be reserved so far as this contract was concerned.

It was recommended for new business the following clause be adopted: "Prices on any undelivered portion of this contract are subject to increase or decrease by the amount that any new federal legislation or action affects the sellers' costs." Many manufacturers fear to make refunds or commitments for refunds because of the danger of the imposition of new taxes. At the same time, they felt that refunds would place certain customers of the same class in a better competitive position than other customer, and result in a situation which would depress prices.

Outerwear Trade Operating Cautiously

Although manufacturers of worsted bathing suits are enjoying active business with prospects that the 1936 season will be one of their largest, the outerwear trade in general has been operating cautiously. This has been due largely to a concerted policy on the part of manufacturers to postpone yarn buying with the idea that spinners would be forced to lower their prices or that lower wool would bring the same result. During the last week there have been indications that many knitters feel they have waited long enough and that instead of lower wool and yarn prices, the reverse is confronting them. This change in psychology has also been apparent among buyers of these lines and they have begun to place spring business belatedly in larger volume.

Although the outerwear markets are becoming more active, particularly so far as men's and boys' sweaters are concerned, not all the benefit from this expansion is going to worsted yarn spinners. High prices for the latter type yarns are causing the widespread use of cheapeners, as manufacturers endeavor to use other fibers to produce a garment which they can sell in approximately the same price bracket as they did a year ago.

To accomplish this many of the sweaters being produced are made from cotton yarn coated with wool or yarns spun from a blend of rayon and wool or rayon and mohair. These yarns used as cheapeners are available in worsted or woolen spun, depending on the requirements of the knitter. This development is not a factor in the bathing suit end which is using the same type yarns as last year, notwithstanding the much higher level of worsted yarns compared with that at the beginning of the 1935 season.

Most bathing suit manufacturers covered their requirements for their 1936 season months ago and at considerably lower prices than now prevail. Notwithstanding the lateness of the placing of much spring sweater business, there are reports in the market that orders for next fall have already been taken. This is understood to apply not only to the very cheap all-worsted coats of the $16.50 quality but also to the better and heavier qualities of $19.50 and $24.00. In the novelty end of the market the showings in men's goods for next fall indicate that manufacturers expect no decided change in styles for the new season.

REVIEW OF THE YARN MARKET

Philadelphia, Pa., February 16, 1936

ALTHOUGH there has been little change in the raw material market during the last month cotton yarn prices have registered a decline of one cent or more and during this period there has been no indication of another active buying spurt developing. New business has not been active for more than two months and although the AAA decision is now more than a month old there are still uncertainties in connection with refunds of the processing tax that are retarding new orders seriously.

Another and probably the most important reason manufacturers are not buying in large amounts and far into the future is that doubt still exists at this time what Congress and the Administration mean to do in regard to levying new and possibly retroactive excise taxes to take the place of the processing levies, as a means of paying the farmers for crop reduction or for soil conservation. Manufacturers do not want to buy heavily under such conditions with doubt what the price will be until these new taxes are imposed. For a time this uncertainty was so worrisome to buyers there was practically no new business but at present some manufacturers are taking advantage of the new yarn clause.

At first yarn sellers had a clause that all yarn on the contract delivered or undelivered would be affected by any new taxes to be imposed. Later when buyers did not operate they changed this to include only the undelivered balance on the order so that a number of manufacturers, not a large number, have bought fair sized amounts this month, feeling that possibly current rates will prove cheap after the new taxes are included in prices as were the processing taxes.

After more than two months of dull demand or since early in December many spinners have been more anxious for new business after seeing their unfilled orders become much less numerous. They have cut prices so that at present some quotations are lower than if the processing tax were to be deducted from prices of yarns on the day before the AAA decision was handed down, January 6. This was not true last month. At that time new business prices were higher than pre-AAA prices less the processing levy.

It is possible to buy 10s average carded cones now for 24 cents or a shade less compared with 25 cents to 25½ cents asked for the same numbers last month; 20s two-ply were then quoted at 28½ cents compared with 27 cents at present and manufacturers report in numerous instances that they have been offered this count as low as 26 cents, which would mean a reduction within the last four weeks of at least 2 cents. Finer numbers have held relatively better in the weaving yarn section, 30s two-ply being quoted at 32½ cents a month ago compared with 32 cents at present. Combed qualities have also suffered a decline, largely on account of larger offerings coming at a time when manufacturers were unwilling to buy for the reasons already outlined. Single combed yarns are 2 to 3 cents a pound lower than a month ago.

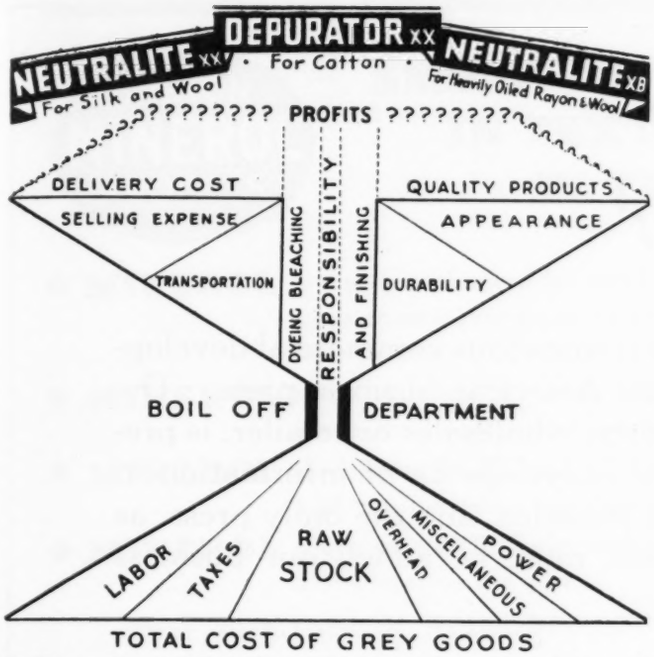
At that time 30s single was quoted at 39 cents, which was a reduction of only 2 cents from the figures some were quoting just prior to the Supreme Court decision. At present some spinners will take business on the basis of 36 cents for this count although most are demanding 37 cents.

Mercerized yarns have not changed in price, 60s two-ply being held at 68 cents, the price that became effective a month ago. This compares with 71 to 72 cents asked before the AAA was eliminated. Mercerizers have a fair amount of business on hand for delivery two to three months ahead, most of which was booked last fall and on which they have been receiving fairly good specifications. Although specifications have been good, new business has been conspicuous by its almost entire absence.

This condition, with new business small but deliveries on old contracts being called for in good amounts, characterizes other sections of the yarn market. Spinners report at present that they are operating more actively and their shipments are larger than they have been since the early part of December. This indicates that manufacturers are becoming busier on spring orders which were delayed until the last possible minute and they are specifying on their old yarn contracts to cover these goods orders but due to the uncertainty of new taxes are refusing to place large contracts ahead.

The reduction in prices over the last month has again narrowed the difference between carded and combed knitting yarns to a point closely approximating the difference at the middle of last year when heavy buying of combed occurred. At present spinners ask 34 cents for 30s single double-carded, which is only 2 cents under the lowest prices being asked for combed. If this condition continues for any length of time, there is no doubt but that it will mean another large year for the consumption of combed knitting yarns in underwear and in polo shirts to the disadvantage of carded, extra carded and double-carded qualities.

High prices for worsted yarns have kept demand at a low level until the last 10 days when a pick-up has been apparent. There has been little change in prices of yarns made from medium wools but noticeable advances have occurred in yarns made from finer grades, due to the abnormally strong situation existing in these grades in the raw material market. Manufacturers feeling that worsted yarn prices were too high had been postponing covering their spring needs but seeing prices again start upward, many of them have decided to buy. Prices of 18s, single, 64s, dyed, which were $1.50 a month ago have advanced 10 cents to $1.60. Quotations of 2-20s, 50s for knitting purposes were $1.15 to $1.17½ last month and at present are held at $1.17½ to $1.22½.



Like the "Tail Wagging the Dog"

If the total investment in the finished grey-goods ready for market, was carefully segregated into departments, each bearing its proportionate expense, it would be found that the Boil-Off department bears only a small part of the total investment, but compared to the RESULT and the great RESPONSIBILITY of its work, is like the "tail wagging the dog."

Don't overlook your Boil-off. For perfect control and maintenance of accurate pH value, and expert finishing results, you can depend on DEPURATOR and NEUTRALITE. Let us demonstrate without cost or obligation to you.

DETERGENT PRODUCTS CORP., ATLANTA, GA.

Columbia, S. C. Raleigh, N. C. Texarkana, Ark. Buffalo, N. Y.

For better detergent action, quicker emulsification, superior resistance to lime, greater stability to acids and alkalies

We recommend

"Laurel Supersulfates"

[U. S. Patent Applied for]

Powders and Gels

These new condensation products, the result of extensive research, offer you a new high in processing all fibers—silk, wool, cotton and rayon. Write for samples and directions for use.

Laurel Soap Manufacturing Company, Inc.

Wm. H. Bertolet & Sons

Established 1909

2600 East Tioga Street Philadelphia, Pa.

Warehouses

Charlotte, N. C. Chattanooga, Tenn. Paterson, N. J.

For better sizing of

Rayon Warps

HERE is the most effective method of securing improved fibre lubrication, greater pliability and increased resistance to moisture. HARTOGEL "K" gives RESULTS, especially when applied in proper proportions with our special Rayon Oils. HARTOGEL "K" is one of the HART products, long famous for their higher quality and unfailing uniformity.

Full data on any or all HART products sent gladly on request.

THE HART PRODUCTS CORPORATION
1440 BROADWAY, NEW YORK, N. Y.

Other HART Products:

Sulfonated Oils	Finishing Oils
Silk Soaking Oils	Dye Assistants
Rayon Oils	Softeners
Backwinding Oils	Rayon Sizings
Degumming Oils	Warp Dressings
Bleaching Oils	Anti-Mildew Agents
Kier Oils	Wetting-out Agents

Hartogel K

BASED ON RESEARCH

BECCO

HYDROGEN PEROXIDE

BECCO

TECHNICAL SERVICE

An excellent, willing combination for every bleacher

BUFFALO ELECTRO-CHEMICAL CO.
BUFFALO, NEW YORK
Boston New York Philadelphia Chicago Charlotte
Toronto Montreal M-325

The American Business Paper

ONE of the vital reasons for the tremendous commercial development in the United States is the American business press. The American business man, manufacturer, wholesaler or retailer, is presented each month with a veritable encyclopedia of information in his chosen field. To the schools of America, and the daily press, as instruments of democratic education must be added our business press with its specialized service.

Consider these features of well-conducted business papers, and their influence on the development of business technique

- - - NEWS which, in the business paper, means the presentation of all angles of controversial matters; the rapid dissemination if information about new or improved products; the spread of knowledge concerning shifts in personnel in an industry, so important to all concerned; the exhaustive studies of conditions and trends which show in what directions industry is moving; the co-relation of specific developments in an industry with general movements in business; the technical information which, in any one issue of a competent business paper, might amount to as much as an individual could hope to gather in a lifetime; and over and above all this detailed material is the editorial comment, sifting, comparing, commenting, searching out the basic elements, organizing the mass of news and information into compact, usable generalizations.

The American Business Paper is one of the evidences of America's willingness to learn. Like its widespread system of democratic education, the Business Paper serves an industry's need for impartial information, placing at each reader's command the same accumulation of data, for such use as he may make of it.

BRETON MINEROL PROCESS PATENTED

AMONG THE GREATEST DEVELOPMENTS IN TEXTILE MANUFACTURING IN THE PAST 25 YEARS!

- **MINEROL** is a prepared agent for conditioning textile fibres • a systematic Process of spraying Natural and Dyed Raw Cotton.
- **MINEROL** helps separate the long fibres from the short. It saves *good cotton* and prevents waste.
- **MINEROL** eliminates DUST and FLY • safeguards HEALTH and insures better working conditions.
- **MINEROL** prevents STATIC electricity. It protects the cards and preserves the wire.

Over 20 MILLION SPINDLES are now in operation.

BORNE SCRYMSER COMPANY

Originators of the "BRETON MINEROL PROCESS" for CONDITIONING COTTON and other textile fibres

MANUFACTURERS OF THE FAMOUS "BRETON" OILS FOR WOOL. SINCE 1874

17 BATTERY PLACE • NEW YORK

THE "BRETON MINEROL PROCESS" EQUIPMENT is Loaned to American Mills Without Charge.

3 SUPERIOR FEATURES OF VICTOR MILL STARCH

"THE WEAVER'S FRIEND"

It Boils Thin . . . Has More Penetration
Carries the Weight into the Fabric

Distributed By:

DANIEL H. WALLACE - SOUTHERN AGENT - GREENVILLE, S. C.
C. B. ILER, Greenville, S. C. F. M. WALLACE, Birmingham, Ala.
L. J. CASTILE, Charlotte, N. C.

Manufactured By

THE KEEVER STARCH CO., COLUMBUS, OHIO

THROWSTERS !

On Viscose and Acetate Silks use

CAMPBELLINE
ART SILK OIL SUPER

Leading Throwing Plants that use this product consider it the best Soaking Oil on the market for Viscose and Acetate Silks.

CAMPBELLINE ART SILK OIL SUPER is the result of exhaustive research. It meets *every* requirement of the Throwing trade for processing all the synthetic yarns.

---gives better

- **Softness**
- **Smoothness**
- **Lubrication**
- **Strength**
- **Weavability**
- **Appearance**

A trial will readily demonstrate the excellent working properties of CAMPBELLINE ART SILK OIL SUPER, as well as the economy it will produce in your soaking costs. Write for working sample or trial barrel on approval. It will pay you to investigate.

JOHN CAMPBELL & CO.
(Est. 1876)
75 Hudson Street, New York
Boston Philadelphia Chicago Providence
Concord, N. C. Burlington, N. C.

SOLVAY
TRADE MARK REG. U. S. PAT. OFF.

The Name Behind It Guarantees the Quality . . .

CAUSTIC SODA
Solid — Ground — Flake — Liquid

Prepared with particular thought to its performance in various textile operations. As with all Solvay alkalies, the standard since 1881, users of Solvay Caustic Soda are assured of getting full strength, because of the high degree of technical supervision and scientific methods employed in its production.

SOLVAY SALES CORPORATION
Alkalies and Chemical Products Manufactured by The Solvay Process Company
40 RECTOR STREET NEW YORK

Branch Sales Offices
Boston, Cincinnati, Cleveland, Detroit, Philadelphia, Chicago, Syracuse, Indianapolis, Pittsburgh, St. Louis, Kansas City, Houston, New York, Charlotte

PRODUCTS

JACQUARD
CARD STAMPING and REPEATING

A very important part of your weaving process
Correctly cut cards save you time and money
We guarantee accuracy and promptness
No work too intricate

Let us quote you on your requirements

ALEXANDER GROSS, INC.
6 Mill Street Paterson, New Jersey

KENWOOD

KENWOOD WOOL PRODUCTS REG. U.S. PAT. OFF.

Tanned
Sanforizing Blankets
Palmer Blankets

F. C. HUYCK & SONS
KENWOOD MILLS
Albany, N. Y.

WOODEN TANKS
ANY SHAPE SIZE

For storage, water treating, washing, dyeing. Round — Rectangular and special shapes.

Write us your needs.

THE HAUSER-STANDER TANK CO. CINCINNATI OHIO

NINE SIZES!

There are nine different models in the FINNELL line of scrubbing machines—assuring exactly the right system to save money as well as clean floors. Have a free demonstration . . . on your floors . . . under actual working conditions. Write FINNELL SYSTEM, Inc., 1303 East Street, Elkhart, Indiana.

FINNELL

EST. 1906

ELECTRIC FLOOR SCRUBBER -- POLISHER

DRAPERY FABRICS

DYED WITH SELECTED CHLORANTINE FAST COLORS HAVE MANY ADVANTAGES OVER VAT DYES

•

CIBA COMPANY INCORPORATED
NEW YORK
CIBA COMPANY, LIMITED
MONTREAL, P. Q., CANADA
Representing
Society of Chemical Industry in Basle,
Vat Dyes of the
Dow Chemical Company, Incorporated
OFFICES
IN MAIN TEXTILE CENTRES

COLLECTIVE THINKING helps you win

Following his natural inclination, the average textile manufacturer adopts a policy of isolated neutrality in the "battle of the fibres". He continues to make the same old fabrics he has always made.

Often, however, he has no choice in the matter. Fickle Dame Fashion makes the decision for him. He HAS to change the character of his product, or go out of business.

Are YOU now faced with the necessity of handling new fibres and making new fabrics? Sudden transitions of this nature usually create sizing and finishing problems too big for any one processing executive to solve quickly and economically. Furthermore the average plant can not afford to retain a STAFF of specialists capable of coping with every new problem that arises.

The obvious answer in such a case is COLLECTIVE THINKING via A-H Consultation Service. This service is rendered free of charge by a staff of specially trained chemists, assisted by a complete, modern laboratory and a company experience of 121 years.

Let collective thinking check on the efficiency of your routine processing methods as well as on new sizing and finishing operations.

CHEMICALS

Sizing and finishing Gums and Compounds • Soluble Gums • Softeners • Soluble Oils • Tallow • Waxes • Flour • Dextrines • Starches • Pigment Colors and Lakes • Ammonia • Acids • Blue Vitriol • Borax • Bichromate of Potash • Liquid Chlorine • Chloride of Lime • Caustic Soda (solid and flaked).

Arnold, Hoffman & Co., Inc.

Established 1815. Plant at Dighton, Mass.

PROVIDENCE, R. I.

New York - Boston - Philadelphia - Charlotte

BOSSON & LANE, INC.

Manufacturing Chemists

Established Jan. 1, 1895

Works and Office, Atlantic, Mass.

HIGH GRADE CASTOR OIL PRODUCTS

Sulphonated-Saponified

Soluble Oils Para Soap Oil
Turkey Red Oil Castor Soap Oil
Soluble Pine Oil B & L Bleaching Oil

PENETRANTS
BINDOL - ALPHASOL

Bleach Softener CSO,
Finishing Sizings and Softeners

VICTROLYN,
the economical assistant in warp sizing.
Penetrating, Lubricating and Wholly Efficient.

B & L BLEACHERS' BLUINGS
AND VIOLET TINTS

GOOD MONEY VALUES--FREEDOM FROM WORRY

Southern Representative:
J. Frank Richardson, Jr., Tryon, N. C.

A WORD TO COTTON MILLS NOW WEAVING RAYON—

Kali Research has developed the best size for Rayon. Get all the facts about our HYDROXY SIZES that are now solving so successfully the problems of those who weave Rayon, Acetate and Viscose yarns. Kali is among the pioneers in this field. Hydroxy Acetate and Viscose Sizes assure excellent weaving. They do not shred in the reeds and harness of the loom and are easily removed. They wash out easily before dyeing, improve the finish and give a better hand.

To Obtain the Best Rayon Crepes

use Hydroxy Slashing Compound "S" on the warp and Hydroxcene on the filling. They are both released quickly and evenly by the dyer. Benefit from our experimental research both in Kali laboratories and in cotton mills everywhere.

The KALI Mfg. Co.
Manufacturing Chemists
1410 N. Front Street, Phila., Pa.

This is the Age OF SPEED and HIGH DRAFT SPINNING

Ring Travelers of greater endurance are necessary. Wentworth Double Duty, Wentworth Gravity, Gravity Express and Lowboy meet these new requirements.

New Duplex Twister Travelers — C. E. F. Twister Travelers

NATIONAL RING TRAVELER CO.
PROVIDENCE, R. I. - CHARLOTTE, N. C.

Southern Office: — 131 West First St., — Charlotte, N. C. — C. D. Taylor, Southern Agent
Southern Representatives; L. Everett Taylor, H. B. Askew, P. O. Box 272, Atlanta, Ga.—Otto V. Pratt, Gaffney, S. C.

LINK-BELT P.I.V. GEAR

POSITIVE, INFINITELY VARIABLE SPEED TRANSMISSION

Any speed instantly obtained at the turn of a handle. Compact, chain-driven, all metal, self-lubricating. Available for horizontal and vertical mounting of the basic unit; also motorized, and with gear reduction sets. Send for Book No. 1574.

LINK-BELT COMPANY

PHILADELPHIA ATLANTA BALTIMORE
5579 INDIANAPOLIS DALLAS NEW ORLEANS

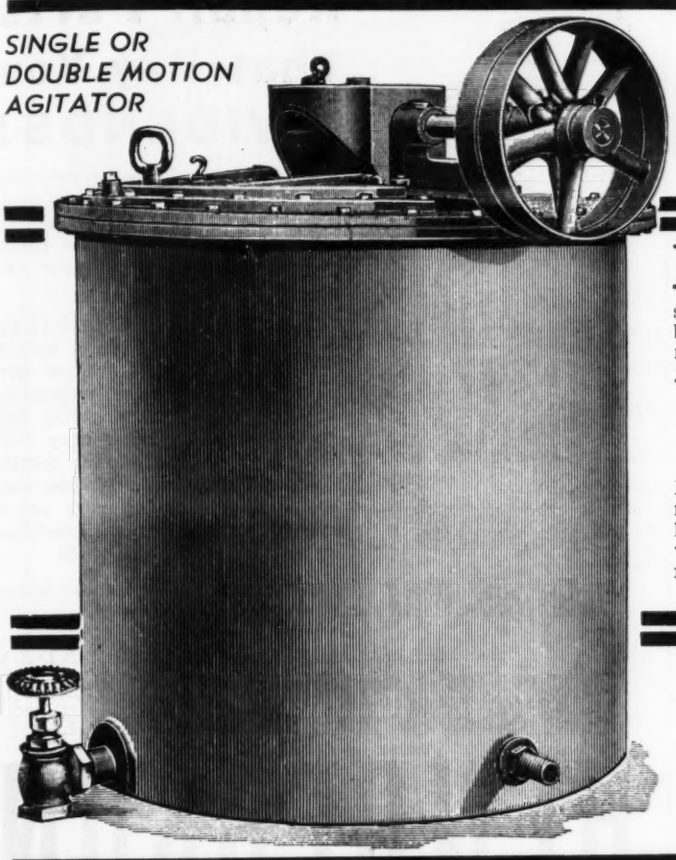
No More Secrets

The Audit Bureau of Circulations was formed by large advertisers and publishers to put a ban on circulation secrets. Publications willing to have their records checked by impartial auditors belong to the Bureau, and the number of papers they sell is published to the world. No one doubts the "A. B. C." report. It eliminates unknown quantities.

COTTON

ATLANTA, GEORGIA

SINGLE OR DOUBLE MOTION AGITATOR



GOLDENS' SIZE KETTLES

MANY of the objectionable features found in other size kettles have been eliminated in the improved design of GOLDENS' SIZE KETTLES. This design incorporates ideas of expert practical mill men. The body is cast solid of the highest quality grey iron. All fixtures are fitted in workmanlike manner with machined joints. Our standard sizes and capacities are as follows:

GALLON CAPACITY	HEIGHT	DIAMETER
110	32″	32″
160	36″	36″
250	42″	42″
360	48″	48″

For mixing, Goldens' Kettles can be furnished with stirrers, propellers or paddles, or combination of same. For heating, Steam Jacketed Kettles can be furnished, or with one or more layers of brass coils, closed or perforated.

Details gladly furnished on request.

GOLDENS' FOUNDRY & MACHINE CO.

COLUMBUS - - GEORGIA

Also manufacturers of

Hangers
Pillow Blocks
Shaft Couplings
Cast Iron Tanks
V-Belt Sheaves
Grey Iron Castings
Ball Bearing Transmission Equipment
Ball Bearing Blower and Fan Boxes
Continuous Dyeing Machines
Raw Stock Dyeing Machines
Dye Liquor Tanks
Cast Iron Tanks
Cloth Inspecting Machines

SHOWS the WAY

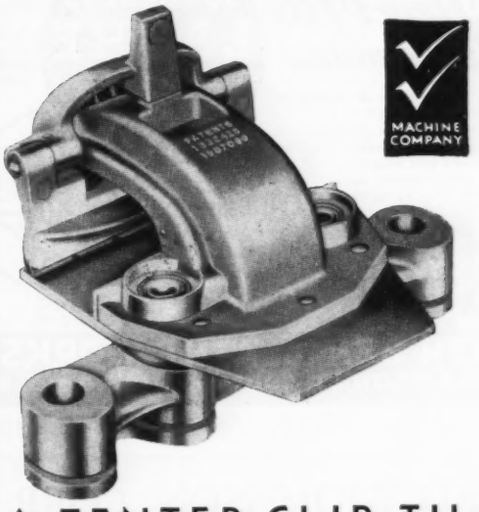
to

ABBOTT CIRCULATING CONE WINDING

LOWER COSTS

ABBOTT MACHINE CO.

WILTON, N. H.



A TENTER CLIP THAT---

Can't grip cloth unevenly, can't drag or over stretch; can't rust or corrode; gives perfect results with all cloths. OTHER ADVANTAGES: Bearing wear is reduced to the minimum. Chain and clip are separate parts and chain is 60% more flexible. Gate and bottom plate never touch. Holding edge and plate last indefinitely.

Write for complete information why this clip has become standard in many plants.

VAN VLAANDEREN MACHINE CO.

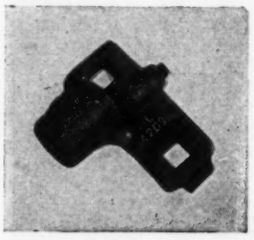
World's Largest Manufacturers of Silk & Rayon Processing Machinery

370 Straight Street Paterson, N. J.

The making and reconditioning of Card Grinders is a highly specialized business.

It is economy to have your grinders repaired by experienced hands.

B. S. ROY & SON COMPANY
Worcester, Mass., U. S. A.
Greenville, S. C.: 21 Byrd Blvd.



Repair Parts That Pay You DIVIDENDS!

A little more care in selecting repair parts will pay you dividends in less stoppage for repairs and decreased maintenance costs, not to speak of the smoother efficiency of operation.

HENDERSON REPAIR PARTS are not just ordinary parts turned out for replacement. They are carefully made for the purpose of strengthening and increasing the efficiency of textile machinery. The weak points in present-day textile machinery have been studied and HENDERSON parts carry extra strength at those points. Precision patterns insure accurate fit.

Let us quote you on these better parts. Drop us a line today.

HENDERSON FOUNDRY & MACHINE WORKS,
HAMPTON, GEORGIA

HENDERSON

This New 1936 Model Genuine SOUTH BEND LATHE $75.00 LESS MOTOR DRIVE

LATHE WEIGHS 310 LBS. CRATED

No down payment—3 years to pay. Write for details on this 9 in. x 3 ft. Workshop Precision, back-geared, screw-cutting Lathe. Made in 8 different drives and 4 bed lengths. 38 practical attachments are available for this lathe.

Free WRITE FOR CATALOG 15

SOUTH BEND LATHE WORKS
290 E. MADISON ST. SOUTH BEND, IND. U.S.A.

Fully 25% of All Cotton Textile Spindles in the United States are Operated on the Loper System.

Ralph E. Loper Co.
INDUSTRIAL ENGINEERS

Specialists in Textile Costs Over 23 Years
FALL RIVER, MASS. GREENVILLE, S. C.

HURLEY-JOHNSON CORP.
25 WALKER ST., NEW YORK
SOLE AMERICAN AGENTS FOR
JAMES KENYON & SON, LTD.
BURY, LANCASHIRE, ENGLAND
Celebrated
LAPPINGS and BLANKETS for PRINTING MACHINES
CLEARER, ROLLER and SLASHER CLOTHS.
For Best results in Sanforizing use
KENYON'S ENDLESS WOOLEN BLANKETS

"Smoother than Grease" Since 1890

20 years without a drink—

ARGUTO OILLESS BEARING CO.
Wayne Junction, Philadelphia, Pa.

"HIGH GRADE"
BOBBINS. SPOOLS.
ROLLS. CONES.
SKEWERS
AND SHUTTLES
OF EVERY DESCRIPTION
FOR TEXTILE MILLS

There is a representative near you who can supply your requirements quickly and with perfect satisfaction. May we serve you, too?

SOUTHERN REPRESENTATIVES:

Ralph Gossett, Wm. J. Moore, 904 Woodside Bldg. Greenville, S. C.
Belton C. Plowden, Griffin, Ga.
Russell A. Singleton, Dallas, Tex.
Gastonia Mill Supply Co., Gastonia, N. C.
James Supply Co., Chattanooga, Tenn.
S. F. Jones, R. A. Brand, Charlotte, N. C.

Something new?

No! For over 50 Years this concern has served Textile Mills throughout the country. Today, we are still serving many customers who placed orders with us when our organization was founded.

A Full Line of finished products, "From Cards to Looms", is manufactured in one Up-to-Date factory under able and well trained workmen and supervision. This means Efficiency and Service. Long Experience and a thorough Knowledge of Textile requirements Does Count.

The DAVID BROWN *Co.*

ESTABLISHED 1883

LAWRENCE....MASS.

AN UP-TO-DATE PRINTING PLANT

equipped with modern machinery and a staff of competent workmen, solicits, thru this publication, a trial order on your printing needs.

We have built a reputation that is known over the entire South by our special attention to the minutest detail.

We are more than ready to answer any question that relates to your printing problems.

Write us and let us quote you on anything from a postal card to a full bound book.

The A. J. Showalter Co.
PRINTERS AND PUBLISHERS
DALTON GEORGIA

CERTIFIED RATINGS
GUARANTEED

Guarantee: *Propellair Fans have Certified Ratings and are guaranteed to move a greater volume of air per minute than any other airplane-propeller type fans with equal diameter and power requirements.*

TO MOVE MORE AIR AT LOWER COST

This sweeping guarantee assures a degree of economy made even greater by the low original cost and very low depreciation of PROPELLAIR FANS. For a degree of satisfaction which we honestly believe is unsurpassed by any other fan—specify stream-lined PROPELLAIR FANS for all ventilating and exhausting requirements.

For illustrated literature and complete 40-page Catalogue write

PROPELLAIR
TRADE-MARK REG.
FANS
PROPELLAIR, INC., Springfield, Ohio

★★★★★★★★★★★★★★★★★★★★

The "Biltmore"--

A Name that commands respect and is synonymous with the highest type of hotel accommodations-

Typical of the very finest of hotels and hotel service, is the name "Biltmore". Here at the Atlanta Biltmore—located out of the NOISE DISTRICT (yet, paradoxically, comparatively close to the heart of the business district) you will find a strictly metropolitan air, combined with the spirit of southern hospitality. 600 outside rooms, each with bath and circulating ice water, a ONE DAY LAUNDRY SERVICE without penalty of extra cost, (and other instances of our CONSIDERATE SERVICE), and a distinctive cuisine, all at moderate rates. *Make this your Atlanta address!*

★

Single rooms, $3, $4, and $5; two persons in room (double bed), $4.50, $5.50, and $6.50; two persons in room (twin beds), $5, $6, and $7. Popular prices in Main Dining Room and Coffee Shop. Table d'hote dinners or a la carte service.

★

THE MOST LOOKED-UP-TO ADDRESS IN ATLANTA

Atlanta BILTMORE ★ HOTEL

"The South's Supreme Hotel"

★★★★★★★★★★★★★★★★★★★★

Hundreds of Textile Executives Say *"It's a Great Book"*

"The PIONEER"

Have You Secured YOUR Copy?

Hundreds of textile executives have secured their copy and proclaim it a great book that every textile man should read. It is a vigorous defense of individual initiative, rugged pioneering and the profit motive as the soundest basis of Southern Industrial Progress. It is a story of the tremendous struggles of our first industrial leaders—their aims, ideals, ambitions, philosophies and accomplishments. It contains a graphic study of the lives of many of our beloved pioneers, such as Captain Ellison Adger Smyth. It contains discussions of legislation, taxation, mill workers and villages, freight rates, governmental and other vital factors. Size 6x9 inches. Fully illustrated. Price $3.00 per copy postpaid. Send no money with order—invoice will be sent at time of delivery.
The edition is becoming limited, so please get your order in at once.

Jacobs & Co. Press
Clinton, South Carolina

A Meeting Place
IN NEW YORK for COTTON MEN

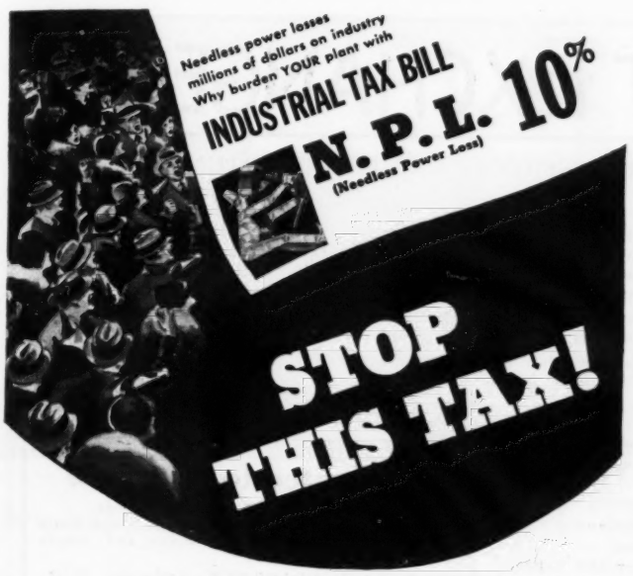
Executives of your industry have favored The Vanderbilt for years... here you will always find men you know...or wish to know. It is convenient for your business requirements . . . ideal for entertaining.

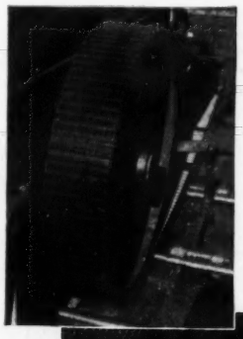
Spacious rooms with bath from $3.50 single . . . . $5 double

FIVE MINUTES FROM GRAND CENTRAL OR PENNSYLVANIA STATIONS

The VANDERBILT HOTEL

Where Park Avenue Begins . . . at 34th Street
NEW YORK





ALL industry is becoming aroused to needless waste, interruptions, and higher production costs, caused by N. P. L. (Needless Power Loss)—industry's Public Enemy Number 1.

Morse sales engineers, with years of practical experience, can help you cut your needless power tax.

MORSE SILENT CHAINS

Morse Silent Chains are 98.6% efficient . . . quiet, flexible and POSITIVE in action. Short centers save valuable floor space and longer life saves maintenance dollars. Send for free Silent Chain Selector Chart.

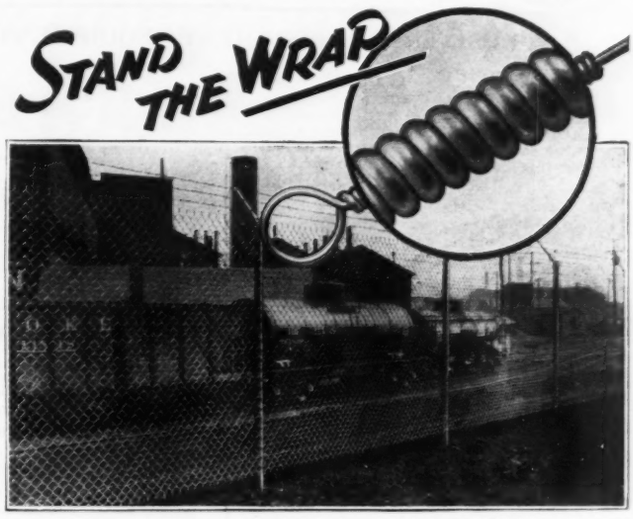
MORSE CHAIN COMPANY
ITHACA - - NEW YORK
Division of Borg-Warner Corporation

MORSE *Positive* **DRIVES**

SILENT CHAIN and ROLLER CHAIN DRIVES • COUPLINGS • CLUTCHES

NOW—AT NO EXTRA COST

CHAIN LINK FENCE THAT CAN



No weak spots for corrosion to attack—the Bethanized wire can be wrapped around its own diameter without breaking or flaking its corrosion-defying zinc coat.

HERE are the quick facts. Bethanized wire has a coating of chemically pure zinc—free from any vulnerable iron content. The coating is smooth and uniform—free from rough or thin spots. And the coating is extremely ductile—not hard and brittle. Twist the wire, bend it double, wrap it around itself—you just *can't* break the zinc coating and expose the steel core.

Think what that means. An Anchor Fence of Bethanized Wire is a fence with no flaws in its pure zinc armor—no cracks or crevices through which corrosion can creep in. Because Bethanized wire can *"stand the wrap,"* these Anchor Fences stand up for many extra years of service—even in industrial atmospheres that are heavy with soot, salt, sulphur and other corroding agents. And now there's no "premium"—no extra cost—for Bethanized wire.

Anchor Fences of Bethanized Wire—in types to suit every industrial requirement—are immediately available to you through sales and erecting offices located in every important industrial center in the South. Learn *why* the new Anchor Fences of BETHANIZED wire will outlast by many years any other chain link fence you can buy. Mail the coupon—and bring yourself up to date on chain link fence.

ANCHOR *Fences*

OF BETHANIZED WIRE

TODAY PLEASE

ANCHOR POST FENCE COMPANY
6623 Eastern Avenue, Baltimore, Maryland.

I will appreciate a copy of your free specification manual giving full details concerning ANCHOR FENCES OF BETHANIZED WIRE for Industrial Property.

Name _____

Address _____

TRADING POST EXCHANGE

BUSINESS—EMPLOYMENT—EQUIPMENT—PROFESSIONAL CARDS—OPPORTUNITIES

DISPLAY RATES

Rates are net, payable in advance each month. No commission or discounts. Page is 3 columns, 10 inches deep—30 inches to page. Space measured by even inch vertically by 1, 2 or 3 columns in width. Column width 2¼ inches. Rates based on the total space used in one year.

	Per Inch		Per Inch
1 inch	$5.00	15 inches	$4.20
3 inches	4.80	20 inches	4.00
6 inches	4.60	50 inches	3.80
10 inches	4.40	100 inches	3.00

UNDISPLAYED

Advertisements set "Want ad" style. Positions wanted .05 word per insertion. Minimum charge $1.00 per insertion. Cash with order. All other classifications .10 word per insertion. Minimum charge $2.00 per insertion. Advertisements of equipment, for sale, rent or wanted and professional cards are accepted at display rate only.

Box number address care of COTTON, Grant Bldg., Atlanta, Ga.. count as eight words.

FOR SALE

Cotton Mill located Montgomery, Alabama. Approximately 50 acres land, two story brick mill building, 52 tenement houses, 13,653 spindles, ring spinning. 47 cards. 114 36" Draper automatic looms, 249 40" Draper automatic looms, electric power. For further information address

H. B. DOWELL, Agent,

Prattville, Alabama.

S. B. SCHWARTZ, C. E.

Textile Engineering

Appraisals & Liquidations of Mill Properties

Used Machinery for Home and Export

1050 CONSTANCE ST., NEW ORLEANS, LA.

Cable Address: Maquintex Code: Bentley's

Wanted to Purchase

Several Hundred Used Loom Reeds. Must be in good shape, please state dents per one inch, Outside width and length Overall. Address

HOWARD BRADSHAW, Anderson, S. C., or Columbia, S. C.

Paul B. Eaton

PATENT LAWYER

1408 Johnston Bldg., Charlotte, N. C.
514 Munsey Bldg., Washington, D. C.
Former Member Examining Corps
U. S. Patent Office

WANTED TO BUY

Quantity—48" model E Draper looms
" —72" model L Draper looms
" —38" or 40" C&K 4x1 auto looms
" —Hispeed warpers, mabz. creels

Need other machinery also. Send list of what you own for sale. SJ Co., care COTTON, Grant Bldg., Atlanta, Ga.

FOR SALE

Two Banner footers 220—3½ Dia Cylinder at $50.00
One Wildman ribber 220—3½ Dia- Cylinder 50.00
One Steady Dial Looper 35.00
Machines are in good condition.

W. H. Laabs, 132 North Ave., Milwaukee, Wisc.

CENTRIFUGAL EXTRACTORS

Washing — Drying — Finishing Machinery. Rebuilt like new. All sizes and makes. Guaranteed. Sacrifice Prices.

WILLIAMS LAUNDRY MACHINERY CO., Dept. A
1780 Broadway, New York City
Phone Circle 7-1393

POSITION WANTED

Dyehouse Second-hand, employed part time, wishes to make change. Seven years thorough experience with direct, sulphur, vats and naphthols on raw stock, beams and packages. Some indigo warp experience. Can match shades. Formerly employed in two of the South's largest dyehouses. Age 25. Married and strictly sober. Best of references on request. Address Box 157, care COTTON, Grant Bldg., Atlanta, Ga.

"Cotton Mill Machinery Calculations"

EVERY Textile Man should have these reference books. They cover in a detailed and thorough manner all calculations necessary to be made on any cotton mill machinery manufactured in the United States and constitute one of the best references on the subject obtainable. The two volumes are illustrated with 45 diagrams and contain 21 reference tables. Strong, serviceable binding. You can secure them in conjunction with a three-year subscription to COTTON.

POSITION WANTED

Experienced superintendent in full-fashioned hosiery manufacturing desires position; capable of taking charge of any department. Address Box 158, c/o COTTON, Grant Bldg., Atlanta, Ga.

DO YOU WANT TO SELL IT?

Probably you, like many other mills, have some equipment which you have taken out or are thinking of taking out and replacing with new equipment.

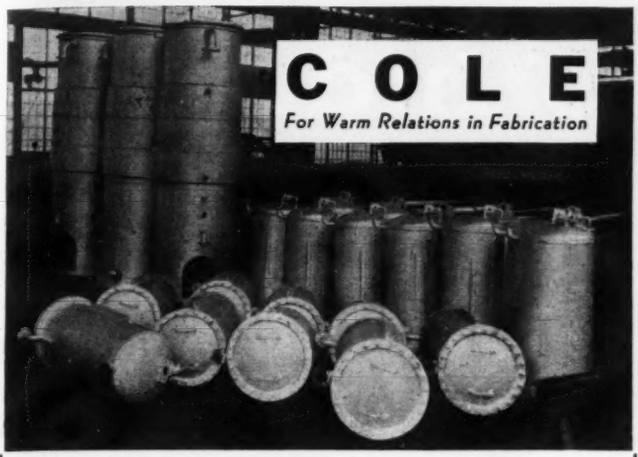
Why not dispose of that second-hand machinery at a profit? COTTON has the largest circulation among the textile mills of the United States of any textile publication.

You Can Sell Your Second-Hand Equipment

to these mills through advertising in the "Trading Post Exchange" section of COTTON. Such advertising produces results at small cost—why not try it out and get that second-hand equipment off your hands in a profitable way? Tell us what you have for sale and let us insert an advertisement for you.

COTTON

GRANT BLDG. ATLANTA, GA.



Nickel-clad or Stainless Vessels

¶ Starch kettles, digestors, vats, and other vessels of this durable metal. Your designs or ours—"custom made" to order.

TANKS, TOWERS, BOILERS, KIERS, KETTLES STAND PIPES, SMOKE STACKS, AIR RECEIVERS, Etc.

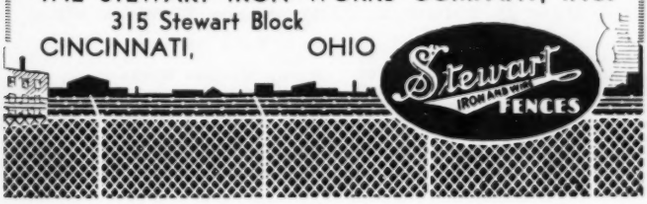
R.D.COLE MANUFACTURING CO.
NEWNAN EST. 1854 GEORGIA
FABRICATORS OF STEEL AND ALLOY STEEL PLATE

THE BEST INSURANCE IS A STEWART FENCE

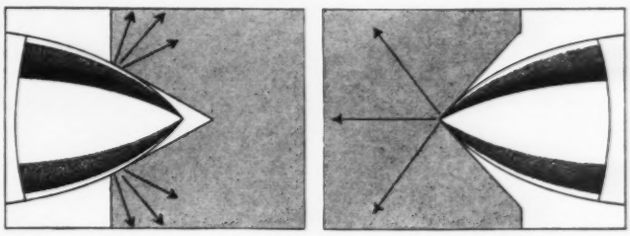
Insure your property against invasion and unwelcome trespassers, 24 hours a day, with a Stewart Non-Climbable Chain Link Wire Fence, the only fence on the market with Beam Construction throughout, the most outstanding fence improvement in years. Investigate this type of construction and the five other equally important features, all exclusive with Stewart, before buying. See or write your local Stewart representative for actual demonstration of the safety and dependability of Stewart Chain Link Wire Fence. Get all the facts.

(1886 — Golden Anniversary — 1936)

THE STEWART IRON WORKS COMPANY, INC.
315 Stewart Block
CINCINNATI, OHIO



2 REASONS
a hand-cut picker
BREAKS DOWN



Too small . . . . . too shallow

In both cases, the shuttle strikes the unscientifically cut hole at single spots—and the repeated shock destroys the picker.

••1 REASON
the picker with the LIFE-SAVER HOLE
STANDS UP

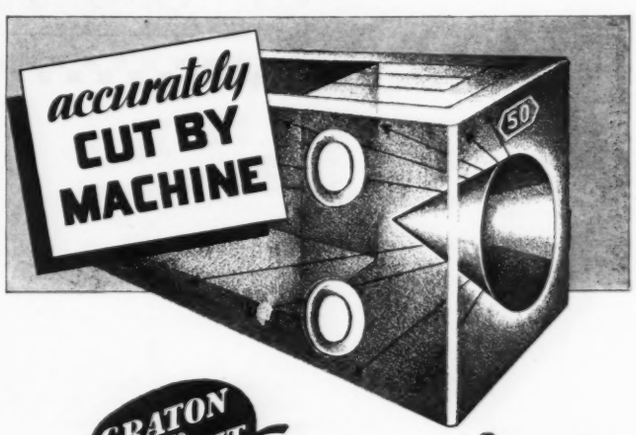
Accurately Cut by Machine

The hole fits the shuttle—so it takes the shock over its strongest surface and distributes it through the picker.

Outlives Other Pickers 2 to 1

Graton & Knight's 50 Type Picker "with the Life Saver Hole" is the only picker with the shuttle point hole cut by machine. Loom fixers prefer it because there is no cutting to do. It is pre-trimmed for quick installation.

THE NEAREST DISTRIBUTOR IS LISTED AT YOUR LOCAL WESTERN UNION OFFICE



GRATON AND KNIGHT *Graton+Knight's*
50 TYPE PICKER

THE PICKER WITH THE LIFE · SAVER HOLE

THE GRATON & KNIGHT CO.
WORCESTER, MASS.

2168

Advertisers' Index

A

Abbott Machine Co. 141
Acme Steel Co. ..... *
Aldrich Machine Works 10
Alemite Division of Stewart-Warner Corp. 31
Allis-Chalmers Mfg. Co. 34
American Aniline Products, Inc. ..... *
American Brass Co. 14
American Moistening Co. 8
American Monorail Co. 39
American Numbering Machine Co. 106
Anchor Post Fence Co. 145
Arguto Oilless Bearing Co. 142
Arkansas Co., Inc. 36
Armour & Co. 32
Armstrong Cork Products Co. 77
Arnold, Hoffman & Co., Inc...139
Ashworth Bros., Inc. ..... *
Atlanta Biltmore Hotel 144
Atlanta Envelope Co. ..... *

B

Bahnson Co. 98
Barber-Colman Co. 93
Boger & Crawford ..... *
Borne Scrymser Co. 137
Bosson & Lane, Inc. 140
Boyle Co., Inc., A. S. ..... *
Bradshaw, Howard 146
Brinton Co., H. 121
Brown Co., David 143
Buffalo Electro-Chemical Co., Inc. 135

C

Cameron Machine Co. ..... *
Campbell & Co., John 138
Ciba Co., Inc. 139
Classified Advertising 146
Clinton Co. 98
Cole Mfg. Co., R. D. 147
Colgate-Palmolive-Peet Co. ... *
Crane Co. 26
Crompton & Knowles Loom Works 15
Cutler, Roger W. 13

D

Dayton Rubber Mfg. Co. 47
Detergent Products Corp. 135
Dixie Mercerising Co. ..... *
Dowell, H. B. 146
Drake Corporation ..... *
Draper Corporation 1
Dronsfield Bros., Ltd. 98
Dupont de Nemours & Co., Inc., E. I., Dyestuffs Division... *
Dupont de Nemours & Co., Inc., Paint & Varnish Division 6 and 7
Dupont de Nemours & Co., Inc., R. & H. Chemicals Dept.... *
Durant Mfg. Co. ..... *

F

Eagle Iron Works 96
Eaton, Paul B. 146
Emerson Apparatus Co. ..... *

F

Fairbanks, Morse & Co. 91
Fafnir Bearing Co. 22
Fiber Mfg. Co. 106
Finnell System, Inc. 138
Foster Machine Co. ..... *
Franklin Process Co. .....
.....Inside Front Cover

G

Gastonia Textile Sheet Metal Works, Inc. ..... *
Gates Rubber Co. ..... *
General Dyestuff Corp. 19
General Electric Co. 87
General Electric, Nela Park... *
General Electric Vapor Lamp Co. 16
General Radio Co. 89
Goldens' Foundry & Mch. Co...141
Goodyear Tire & Rubber Co... 75
Grasselli Chemical Co., Inc... *
Graton & Knight Co. 147
Gross, Inc., Alexander 138

H

H & B American Machine Co. 79
Hart Products Corp. 135
Hauser-Stander Tank Co. 138
Henderson Fdry. & Mach. Works 142
Hermas Machine Co. ..... *
Hetherington & Sons, Inc., John 98
Hinde & Dauch Paper Co. .... *
Hotel Atlanta Biltmore 144
Hotel Pennsylvania 46
Hotel Vanderbilt 144
Houghton & Co., E. F. 129
Howard Bros. Mfg. Co. 23
Hurley-Johnson Corp. 142
Huyck & Sons, F. C. 138
Hyatt Roller Bearing Co. 27

I

Industrial Rayon Corp. 50
International Nickel Co., Inc... 28

J

Jacobs & Co. Press. 144
Jacobs Graphic Arts Co. 44
Johnson Bronze Co. 108
Johnson Service Co. 91
Johnson, Chas. B. ..... *

K

Kali Mfg. Co. 140
Kaumagraph Co. ..... *
Keever Starch Co. 137
Knitting Arts Exhibition 38

L

Laabs, W. H. 146
Langevin, George F. ..... *
Laurel Soap Mfg. Co. 135
Lawrence Leather Co., A. C... 81
Link-Belt Co. 140
Loper Co., Ralph E. 142

M

Maguire & Co., Inc., John P. .....103 and 104
Manhattan Rubber Mfg. Co. Division ..... *
Maple Flooring Mfg. Assn. ... *
Mathieson Alkali Works 4
Merrow Machine Co. 98
Moccasin Bushing Co. 106
Morehead M'g. Co. ..Front Cover
Morse Chain Co. 145

N

National Oil Products Co. 24
National Ring Traveler Co. ..140
New Departure Mfg. Co. 3
New York & New Jersey Lubricant Co. 96
North, Inc., Frank G. 96

O

Old Dominion Box Co. 108
Onyx Oil & Chemical Co. 12

P

Parks-Cramer Co. 41
Permutit Co. 33
Philadelphia Felt Co. 100
Power Transmission Council.. 25
Proctor & Schwartz, Inc. 85
Propellair, Inc. 143
Provident Life & Accident Insurance Co. ..... *

Q

Quissett Mills 132

R

Reeves Pulley Co. 29
Reliance Electric & Eng'g. Co. 40
Republic Rubber Co. 43
Republic Steel Corp. 48
Robert & Company 35
Rohm & Haas Co. ..... *
Roy & Son Co., B. S. 142
Royce Chemical Co....Back Cover
Royersford Needle Works, Inc.120

S

S. K. F. Industries, Inc. ..... *
Saco-Lowell Shops ..... *
Sargent's Sons Corp., C. G.... *
Schieren Co., Chas. A. ..... *
Scholler Bros., Inc. 132
Schwartz, S. B. 146
Scott & Williams, Inc. 113
Seydel-Wooley Co. ..... *
Sherwin-Williams Co. 37
Showalter Printing Co., A. J....143
Socony-Vacuum Oil Co., Inc., ...17 and 18
Solvay Sales Corp. 138
Sonoco Products Co. 94
South Bend Lathe Works 142
Standard Brands, Inc. ..... *
Standard Mill Supply Co. .... *
Standard Oil Co. of Ky..... *
Standard Trump Bros. Mch. Co. 113
Steel Heddle Mfg. Co. ..... *
Stein, Hall & Co., Inc. ..... *
Stewart Iron Works Co., Inc...147
Stonhard Co. ..... *

T

Taylor Instrument Companies... 42
Terrell Machine Co., Inc. 111
Texas Co. 2
Textile Apron Co. 106
Textile Banking Co. 107
Textile Machine Works ..... *
Three-In-One Oil Co. ..... *
Torrington Co. .....123 and 124
Trading Post Exchange 146
Trico Fuse Mfg. Co. 100

U

Union Special Machine Co....118
Universal Winding Co. 9
U S Bobbin & Shuttle Co. ... 30
U. S. Ring Traveler Co. 108
U. S. Rubber Co. 20

V

Van Vlaanderen Machine Co...141
Veeder-Root, Inc. .....
.....Inside Back Cover

W

Wallerstein Co., Inc. 21
Want Ads 146
Waterman, Currier & Co., Inc.132
Westinghouse Electric & Mfg. Co. ..... *
West Point Foundry & Mch. Co. 11
Whitin Machine Works 5
Whitinsville Spinning Ring Co. 89
Wildman Mfg. Co. 116
Williams Laundry Mchry. Co...146
Willcox & Gibbs Sewing Machine Co. 88
Wolf & Co., Jacques 45

FIRST

In Circulation Among the Textile Mills of the United States
In Number of Actual Buyers Reached
(Executives, Superintendents, Department Heads, Master Mechanics)

COTTON

Back in 1907—textile manufacturers put their stamp of approval on the first pick counters—*which Veeder-Root designed, built and installed.* And since that time, more than half-a-million other Veeder-Root Pick Counters have been ok'd by textile men for their trouble-free performance.

Veeder-Root engineers *know* what a pick counter should have—and for good reason . . . they originated every important development and refinement in pick counter design and construction. They have made each succeeding model better than the last . . . building such perfection into this equipment that today, all Veeder-Root Pick Counters can be backed by a *Five-Year Guarantee.*

A Veeder-Root textile specialist will be pleased to show you the 14 reasons why Veeder-Root Pick Counters are the finest and most economical it is possible to buy. Call him in. There is a Veeder-Root office in your territory.

VEEDER-ROOT, *Inc.*

HARTFORD, CONN. • BOSTON • PHILADELPHIA • MONTREAL • LONDON • **GREENVILLE, S. C.**

BUILDERS OF COUNTING DEVICES SINCE 1878

A NEW STAR RISES IN THE PRINTING TRADE

VATRO-GUM

MAKES PERFECT PRINTS...

ON PIGMENTED RAYON FABRICS!

It is an innovation • making a special appeal to all textile printers and colorists. ● VATRO-GUM is a convenient, ready-to-use Vat Paste containing selected thickeners of known qualities, together with the correct proportions of potash and reducing agent. It is made in several grades • ONE of which will exactly fit YOUR need.

● Why prepare your own vat gum when VATRO-GUM is so convenient and so decidedly superior in results? Compare VATRO-GUM with your own product in these features •

1 Uniform viscosity • a feature not possible in average color shop practice.

2 Standard • Laboratory controlled proportion of reducing agent.

3 Maximum penetration • smooth, even print not equalled in any regular British Gum, starch mixtures. Unusual Value stands out on pigmented yarns.

4 In printing qualities VATRO-GUM is free-flowing • prints with a sharp mark • lints perfectly • leaves no tarnish • effects a dyestuff saving with maximum color value.

5 Readily disperses in an ordinary washing operation, leaving no stiffness in the fabric.

READY-TO-USE! . . . . VATRO-GUM requires only the addition of dyestuff!
● BETTER PRINTS with GREATER EASE • We'll HELP select YOUR GRADE

ROYCE CHEMICAL COMPANY

CARLTON HILL • NEW JERSEY

NEW ENGLAND REPRESENTATIVES • RICHARD HAWORTH INC., 25 FOUNTAIN STREET, PROVIDENCE, R. I.